



**NASA**  
**Procedural**  
**Requirements**

**COMPLIANCE IS MANDATORY**

**NPR 8580.1**

Effective Date: November 26,  
2001

Expiration Date: November  
26, 2009

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# **Implementing The National Environmental Policy Act And Executive Order 12114**

**Responsible Office: Environmental Management Division**

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# PREFACE

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## P.1 PURPOSE

P.1.1 In support and promotion of NASA's Strategic Plan, NASA's Strategy for Environmental excellence in the Twenty-First Century, and NASA Policy Directive ([NPD 8500.1, NASA Environmental Management](#)), and consistent with the requirements of the National Environmental Policy Act of 1969 (NEPA), as amended (42 U.S.C. 4321 et seq.), The Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500-1508), and NASA's regulations (14 CFR Part 1216 Subpart 1216.3), this NASA Procedures and Guidelines (NPR) establishes standard procedures for implementing NEPA and NASA's overall environmental planning process. This NPR establishes responsibilities, procedures, and guidelines for carrying out the requirements of NEPA, its implementing regulations, and Executive Order (EO) 12114, Environmental Effects Abroad of Major Federal Actions.

P.1.2 The requirements of NEPA, its implementing regulations, and, if applicable, EO 12114 must be satisfied before an action can be taken that would (a) have an adverse environmental impact, or (b) limit the choice of reasonable alternatives.

## P.2 APPLICABILITY

P.2.1 This NPR is applicable to NASA Headquarters and NASA Centers, including Component Facilities.

P.2.2 This NPR is applicable for 5 years from the date of signature, unless the date is otherwise extended.

P.2.3 For programs, projects, and activities for which NASA commenced the NEPA process before the effective date of this NPR, it should be followed to the extent practicable.

## P.3 AUTHORITY

P.3.1 42 U.S.C. §2473(c)(1), Section 203(c)(1) of the National Aeronautics and Space Act of 1958, as amended.

P.3.2 14 CFR Subpart 1216.3 NASA's regulations implementing NEPA and EO 12114.

P.3.3 EO 12114, Environmental Effects Abroad of Major Federal Actions.

## P.4 REFERENCES

P.4.1 [NPD 1000.1, NASA's Strategic Plan of February 1998.](#)

P.4.2 NASA's Strategy for Environmental Excellence in the Twenty-First Century, May 1994.

P.4.3 [NPD 8500.1, NASA Environmental Management.](#)

P.4.4 42 U.S.C. §4321 et seq., The National Environmental Policy Act of 1969, as amended.

P.4.5 40 CFR Parts 1500-1508, The Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA.

P.4.6 [NPR 1000.3, The NASA Organization.](#)

P.4.7 [NPD 1440.6F, NASA Records Management.](#)

P.4.8 [NPR 1441.C, NASA Records Retention Schedules.](#)

P.4.9 [NPR 7120.5A, NASA Program and Project Management Processes and Requirements.](#)

P.4.10 [NPR 8820.2C, Facility Project Implementation Handbook.](#)

## **P.5 CANCELLATION**

NASA Handbook (NHB) 8800.11, Implementing the Provisions of the National Environmental Policy Act, dated February 1988 is hereby canceled.

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**/s/ Jeffrey E. Sutton**  
**Assistant Administrator for**  
**Institutional and Corporate Management**

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# CHAPTER 1. Overview

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## 1.1 Introduction

This document constitutes detailed National Aeronautics and Space Administration (NASA) internal implementing procedural requirements. It supersedes and replaces the NASA Handbook, NHB 8800.11, Implementing the Provisions of the National Environmental Policy Act.

## 1.2 Purpose

1.2.1 This NASA Procedural Requirements (NPR) has been prepared to assist NASA Headquarters, Centers, Strategic Enterprises, and Program and Staff Offices in implementing NASA's regulations to ensure compliance with the National Environmental Policy Act of 1969 (NEPA), as amended (42 U.S.C. 4321 et seq.) and Executive Order (EO) 12114. NASA's policies and procedures are published in the Code of Federal Regulations (CFR) at 14 CFR Part 1216 Subparts 1216.1 and 1216.3.

1.2.2 This NPR serves as a practical reference and source of guidance for use by NASA managers and other responsible staff in ensuring that their programs, projects, and activities are carried out in compliance with the letter and spirit of NEPA and EO 12114.



# CHAPTER 2. NASA's National Environmental Policy Act Responsibilities

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## 2.1 National Environmental Policy Act

2.1.1 The National Environmental Policy Act (NEPA) is the basic national policy for protecting the human environment (see Appendix C for full text). NEPA sets the Nation's goals for enhancing and preserving the environment (see Section 101; 42 U.S.C. §4331). NEPA also provides the procedural requirements to ensure compliance by all Federal agencies (see Section 102; 42 U.S.C. §4332). NEPA compliance can be a critical path item in project or mission implementation.

2.1.2 NEPA requires all Federal agencies to consider, before an action is taken, environmental values in the planning of actions and activities that may have a significant impact upon the quality of the human environment. NEPA directs agencies to consider alternatives to their proposed activities. In essence, NEPA requires NASA decisionmakers to consider environmental, technical, and economic factors. NEPA is also an environmental disclosure statute. It requires that available information be adequately addressed and made available to NASA decisionmakers in a timely manner so they can consider the environmental consequences of the proposed action or activity. Environmental information must also be made available to the public as well as to other Federal, State, and local agencies.

2.1.3 NEPA does not require that the proposed action or activity be free of environmental impacts, be the most environmentally benign of potential alternatives, or be the most environmentally wise decision. NEPA requires the decisionmaker to consider environmental impacts as one factor in the decision to implement an action.

2.1.4 Title II of NEPA established the President's Council on Environmental Quality (CEQ). All Federal agencies must follow regulations promulgated by CEQ to develop their own policies and regulations to implement NEPA. In addition, CEQ is charged with monitoring the progress of Federal agencies in accomplishing the goals of NEPA.

## 2.2 Council on Environmental Quality Regulations

2.2.1 In 1977, through Executive Order (EO) 11991, CEQ was directed to prepare binding regulations governing how Federal agencies were to implement NEPA. Those regulations, Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act, were first published in November 1978 with one section amended in 1986. CEQ regulations can be found at 40 CFR Parts 1500-1508 (see Appendix D for full text). CEQ's regulations provide the framework within which every Federal agency develops its policies and regulations for implementing NEPA. An agency's policies and regulations elaborate upon and tailor CEQ regulations to its specific mission and circumstances. Briefly, CEQ regulations require all Federal agencies to do the following:

- a. Implement regulations that ensure that environmental information is available to decisionmakers, public officials, and citizens before decisions are made and actions taken,
- b. Integrate the requirements of NEPA, to the extent practical, with other planning and environmental review statutes and regulations (e.g., historic resources and threatened or endangered species),
- c. Provide for public involvement in decisions that would affect the quality of the human environment, and
- d. Use the NEPA process to identify and assess reasonable alternatives to proposed actions that would avoid or reduce adverse impacts upon the quality of the human environment.

2.2.2 CEQ regulations also provide formal procedures for three levels of NEPA process and documentation to be used by all Federal agencies: Categorical Exclusions (CatEx), Environmental Assessments (EA), and Environmental Impact Statements (EIS). Together, these three levels provide the basic framework for all Federal agency NEPA compliance processes.

## 2.3 Additional CEQ Guidance

2.3.1 CEQ has published additional guidance concerning its NEPA regulations and other related environmental

concerns. Table 2-1 summarizes this additional CEQ guidance. All but the guidance on biodiversity and pollution prevention have been implicitly incorporated into the latest update (1986) of CEQ regulations provided in Appendix D.

2.3.2 It should be recognized that the additional CEQ guidance does not have the force of formal regulations. The Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, provided in Appendix G, gives useful guidance that touches on the breadth of NEPA compliance activities that can be undertaken by an agency and sheds added light on EA's. Additional questions and answers concerning NASA NEPA regulations can be found in Appendix K.

Table 2-1. Council on Environmental Quality Guidance

Title of Guidance	Summary of Guidance	Citation	Relevant Regulation/Documentation
Forty Most Often Asked Questions Concerning CEQ's National Environmental Policy Act Regulations	Provides answers to 40 questions most frequently asked concerning implementation of NEPA.	46 FR 18026, dated March 23, 1981	40 CFR Parts 1500-1508 (see Appendix G for full text)
Implementing and Explanatory Documents for Executive Order 12114, Environmental Effects Abroad of Major Federal Actions	Provides implementing and explanatory information for EO 12114. Establishes categories of Federal activities or programs as those that significantly harm the natural and physical environment. Defines which actions are excluded from the order and those that are not.	44 FR 18672, dated March 29, 1979	EO 12114, Environmental Effects Abroad of Major Federal Actions
Publishing of Three Memoranda for Heads of Agencies on:  - Analysis of Impacts on Prime or Unique Agricultural Lands (Memoranda 1 and 2)  - Interagency Consultation to Avoid or Mitigate Adverse Effects on Rivers in the Nationwide Inventory (Memorandum 3)	1/2 Discusses the irreversible conversion of unique agricultural lands by Federal Agency action (e.g., construction activities, developmental grants, and federal land management). Requires identification of and cooperation in retention of important agricultural lands in areas of impact of a proposed agency action. The agency must identify and summarize existing or proposed agency policies, to preserve or mitigate the effects of agency action on agricultural lands.  3 "Each Federal agency shall, as part of its normal planning and environmental review process, take care to avoid or mitigate adverse effects on rivers identified in the Nationwide Inventory prepared by the Heritage Conservation and Recreation Service in the Department of the Interior." Implementing regulations includes	45 FR 59189, dated September 8, 1980	1/2 Farmland Protection Policy Act (7 U.S.C. §4201 et seq.)  3 The Wild and Scenic Rivers Act of 1965 (16 U.S.C. §1271 et seq.)

	determining whether the proposed action: affects an Inventory River; adversely affects the natural, cultural and recreation values of the Inventory river segment; forecloses options to classify any portion of the Inventory segment as a wild, scenic or recreational river area, and incorporates avoidance/mitigation measures into the proposed action to maximum extent feasible within the agency's authority.		
Memorandum for Heads of Agencies for Guidance on Applying Section 404(r) of the Clean Water Act at Federal Projects Which Involve the Discharge of Dredged or Fill Materials into Waters of the U.S. Including Wetlands	Requires timely agency consultation with U.S. Army Corps of Engineers (COE) and the U.S. Environmental Protection Agency (EPA) before a Federal project involves the discharge of dredged or fill material into U.S. waters, including wetlands. Proposing agency must ensure, when required, that the EIS includes written conclusions of EPA and COE (generally found in Appendix).	Council on Environmental Quality, dated November 17, 1980	Clean Water Act (33 U.S.C. §1251 et seq.)  EO 12088, Federal Compliance with Pollution Control Standards
Scoping Guidance	Provides a series of recommendations distilled from agency research regarding the scoping process. Requires public notice; identification of significant and insignificant issues; allocation of EIS preparation assignments; identification of related analysis requirements in order to avoid duplication of work; and the planning of a schedule for EIS preparation that meshes with the agency's decisionmaking schedule.	46 FR 25461, dated May 7, 1981	40 CFR Parts 1500-1508
Guidance Regarding NEPA Regulations	Provides written guidance on scoping, CatEx's, adoption regulations, contracting provisions, selecting alternatives in licensing and permitting situations, and tiering.	48 FR 34263, dated July 28, 1983	40 CFR Parts 1501, 1502, and 1508
National Environmental Policy Act (NEPA) Implementation Regulations, Appendices I, II, and III	Provides guidance on improving public participation, facilitating agency compliance with NEPA and CEQ implementing regulations. Appendix I updates required NEPA contacts, Appendix II compiles a list of Federal and Federal-State Agency Offices with jurisdiction by law or special expertise in	49 FR 49750, dated December 21, 1984	40 CFR Part 1500

	environmental quality issues; and Appendix III lists the Federal and Federal-State Offices for receiving and commenting on other agencies' environmental documents.		
Incorporating Biodiversity Considerations into Environmental Impact Analysis under the National Environmental Policy Act	Provides for "acknowledging the conservation of biodiversity as national policy and incorporates its consideration in the NEPA process"; encourages seeking out opportunities to participate in efforts to develop regional ecosystem plans; actively seeks relevant information from sources both within and outside government agencies; encourages participating in efforts to improve communication, cooperation, and collaboration between and among governmental and nongovernmental entities; improves the availability of information on the status and distribution of biodiversity, and on techniques for managing and restoring it; and expands the information base on which biodiversity analyses and management decisions are based.	Council on Environmental Quality, Washington, DC, dated January 1993	Not applicable
Pollution Prevention and the National Environmental Policy Act	Pollution-prevention techniques seek to reduce the amount and/or toxicity of pollutants being generated, promote increased efficiency of raw materials and conservation of natural resources and can be cost-effective. Directs Federal agencies that to the extent practicable, pollution prevention considerations should be included in the proposed action and in the reasonable alternatives to the proposal, and to address these considerations in the environmental consequences section of an EIS and EA (when appropriate).	58 FR 6478, dated January 29, 1993	EO 12088, Federal Compliance with Pollution Control Standards
Considering Cumulative Effects under the National Environmental Policy Act	Provides a "framework for advancing environmental cumulative impacts analysis by addressing cumulative effects in either an environmental assessment (EA) or an environmental impact statement" . Also provides practical methods for addressing coincident effects (adverse or beneficial) on specific resources, ecosystems, and	January 1997	40 CFR §1508.7

	human communities of all related activities, not just the proposed project or alternatives that initiate the assessment process.		
Environmental Justice Guidance Under the National Environmental Policy Act	Provides guidance and general direction on Executive Order 12898 which requires each agency to identify and address, as appropriate, "disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."	Council on Environmental Quality, Washington, DC, dated December 10, 1997	EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

## CHAPTER 3. NASA National Environmental Policy Act Overview

### 3.1 Introduction

3.1.1 NASA policy and regulations implementing NEPA, related authorities, and Executive Order (EO) 12114 appear at 14 CFR Part 1216 Subparts 1216.1 and 1216.3. NASA's regulations comply with the requirements of CEQ regulations, define the types of NASA actions and activities subject to the procedural requirements of NEPA, and implement EO 12114. This NPR is internal NASA guidance for compliance with NEPA policy and regulations.

3.1.2 NASA NEPA and other environmental planning documents should be clearly written using plain English, and recognizing the importance of both the metric and British systems of measurement. All measurements should be provided in metric units with British system equivalents in parentheses. A list of common conversions is provided in Appendix A.

### 3.2 Applicability to NASA Activities

3.2.1 NASA actions generally fall within one of the following three categories:

a. Science, Aeronautics, and Technology (SAT), which encompasses research and development activities directed toward attaining the objectives of a specific mission, project, or program. This category includes NASA aeronautics and space program elements, such as the development of new propulsion systems, spacecraft development and operations, flight projects, science instrument development and operations, and space transportation systems.

b. Mission Support (MS), which includes four subcategories: (1) Research and Program Management (Personnel and related costs, Travel, and Research Operations Support), (2) Construction of Facilities (Discrete projects, minor revitalization and construction, facility planning and design; and environmental compliance); (3) Safety, Reliability, and Quality Assurance, and (4) Space Communication Services.

c. Human Space Flight (HSF), which encompasses activities similar in scope to SAT activities but that primarily focus on human space flight. Examples include the national fleet of Space Shuttle orbiters, the main engines, launch sites, mission operations, initial spares, production tooling and supporting activities, launch operations, and tracking and data acquisition.

3.2.2 Although infrequent, NASA may prepare special proposals for legislation involving new or altered Agency missions. These activities are addressed in NASA's regulations at 14 CFR §1216.315 (for more detailed information on legislative proposals see Appendix E and section 7.4 of this NPR).

3.2.3 In the vast majority of instances, the principal responsibility for an action lies with a specific NASA Center or Centers as traditionally defined. For those actions in which principal responsibility has not been assigned to a specific Center or Centers, NASA Headquarters (HQ) shall be the responsible Center.

### 3.3 Management-Level Roles and Responsibilities

3.3.1 NASA NEPA policies and procedures designate roles and responsibilities for certain management positions (see Appendix E). Sections 3.3 through 3.7 of this NPR highlight these senior-level roles and responsibilities.

3.3.1.1 The Assistant Administrator for Institutional and Corporate Management, successor, or designee, is responsible for developing NASA's NEPA regulations; ensuring that environmental factors are properly considered in all NASA planning and decisionmaking; monitoring to ensure that the regulations are achieving their purposes; advising line management and informing NASA employees of the technical and managerial requirements of environmental analysis, available expertise inside and outside of NASA, and with the assistance of the Office of the General Counsel, relevant legal developments; and consolidating and transmitting NASA comments on EIS's and other NEPA documentation prepared by other Federal agencies.

3.3.1.2 The NASA Headquarters/Environmental Management Division (HQ/EMD) functions under the authority of the AA for Institutional and Corporate Management and is delegated the responsibility of implementing the NEPA functions. The HQ/EMD also provides advice and consultation to all other NASA entities in implementing their assigned responsibilities under NEPA. HQ/EMD, in coordination with appropriate HQ and Center offices, will review this NPR biennially and issue interim guidance as appropriate.

3.3.1.3 NASA activities are implemented through specific Sponsoring Entities, such as NASA HQ, NASA Centers (including Component Facilities), Strategic Enterprises, Program, or Staff Offices. The lead officials for these entities, the Officials-in-Charge, have the primary responsibility for ensuring that the NEPA process is integrated into their organizations' project planning activities before the Sponsoring Entities implement activities and actions. The Sponsoring Entities also are responsible for ensuring that records management requirements are met. NEPA functions are not performed directly by lead officials. Each NASA Center has an Environmental Management Office (EMO), which is usually delegated the responsibility for implementing NEPA. The EMO performs the primary or working-level functions of the NEPA process, such as evaluating proposed activities, developing and/or reviewing and approving required documentation, advising project managers, and signing environmental decision documents on projects and programs having little or no environmental impact. Since the EMO provides essential functional support to the Sponsoring Entity, and because its implementation responsibilities are delegated, the term Sponsoring Entity will be used throughout this NPR to include the implementing NEPA organization at all NASA facilities. In cases where the Sponsoring Entity needs to be further defined, it will be specifically noted. For proposals made by tenants or entities using services or facilities at a NASA Center or Component Facility, the Sponsoring Entity shall be that Center or, if such authority is delegated to the Component Facility, the Component Facility.

3.3.1.4 In the case of the Jet Propulsion Laboratory (JPL), the Sponsoring Entity shall be the NASA HQ Office of Space Science (OSS). NASA OSS personnel may call upon and use the technical resources available through the JPL operating contractor.

3.3.1.5 For other Federally Funded Research and Development Centers (FFRDC), the Sponsoring Entity is the NASA Center with whom the FFRDC has a contract.

3.3.1.6 The Assistant Administrator for the Office of Legislative Affairs is responsible for ensuring that legislative EIS's (see section 7.4) accompany, in appropriate instances, NASA recommendations or reports on proposals for legislation submitted to Congress.

3.3.2 Specific responsibilities for the NEPA process and documentation are discussed in chapters 4, 5, and 6. Additional responsibilities within special NEPA topics are discussed in chapter 7. Appendix B provides a glossary of terms for easy reference.

### 3.4 Timing NEPA Compliance with Project Planning

3.4.1 CEQ regulations state that agencies "... shall integrate the NEPA process with other planning at the earliest possible time to ensure that planning and decisions reflect environmental values, to avoid delays later in the process, and to head off potential conflicts. ..." (40 CFR §1501.2).

3.4.2 The EA or EIS must be completed before project planning reaches a point where NASA's ability to implement reasonable alternatives is precluded (i.e., before hard decisions are made regarding project implementation). Environmental planning factors should be integrated into the conceptual stage of project planning when a broad range of alternative approaches is being considered. In the project development stage, decisions are made that affect the detailed planning stage. At a minimum, an environmental evaluation should be prepared in the project development stage (see section 3.7.4.3). During this stage, the responsible project manager will have the greatest latitude in making adjustments in the plan to mitigate or avoid important environmental sensitivities and planning the balance of the NEPA process to avoid unpleasant surprises later in the project cycle which may have schedule and/or cost implications.

3.4.2.1 An EA or an EIS is normally completed during the detailed planning phase. In this phase, reasonable alternatives are analyzed and hard decisions on how to proceed with a project are being made. The scope and intensity of analyses of the reasonable alternatives should be consistent with the purpose of an EA or EIS.

3.4.2.2 Before completing the NEPA process, no NASA official can take an action that would (1) affect the environment or (2) limit the choice of reasonable alternatives. Accommodating environmental requirements early in project planning ultimately conserves both budget and schedule. Table 3-1 provides the critical environmental decision points for the NEPA process.

Table 3-1. Environmental Decision Points<sup>1</sup>

#### Critical Timing Points

##### Mission Support

Documentation	Process Start			
Environmental Evaluation/REC  (see chapter 4)	Initial Concept Proposal	PRD or Concept or Service Request Submission, as appropriate	Project Definition and Preliminary Concept Funding	Project Definition and Preliminary Concept Funding
EA/FONSI (if appropriate)  (see chapter 5)	Draft EA: Starts at Preliminary Design	By 100% Design Review	Before spending 10% of Development/Construction Budget or PDR, whichever comes first <sup>3</sup>	Before spending 10% of Development/Construction Budget or PDR, whichever comes first <sup>3</sup>
EIS/ROD (no sooner than 30 days after Final EIS)  (see chapter 6)	Draft EIS: Start at Project/Budget Approval	Final EIS: By 100% Design Review	Final EIS: Before spending 10% of Development/Construction Budget or before final decisions are made on Design, Development, Test, and Evaluation, whichever comes first <u>3.</u> <u>ROD: After CDR Final EIS: Before spending 10% of Development/Construction Budget or before final decisions are made on Design, Development, Test, and Evaluation, whichever comes first</u> <u>3.</u> <u>ROD: After CDR</u> <u>1 The NEPA process must be completed no later than the activities associated with the category.</u>	



4. Depending on contractual requirement for design review steps.

3. Development/construction budget includes budget for launch.

<u>CDR = Critical Design Review</u>	<u>PDR = Preliminary Design Review</u>
<u>EA = Environmental Assessment</u>	<u>REC = Record of Environmental Consideration</u>
<u>EIS = Environmental Impact Statement</u>	<u>ROD = Record of Decision</u>
<u>FONSI = Finding Of No Significant Impact</u>	<u>PRD = Project Requirements Document</u>

3.4.3 To decide if a NASA, Federal, non-Federal entity, or contractor activity related to a proposed Federal action may be approved or implemented before completing the NEPA process, the Sponsoring Entity must determine that-- a. The activity will not have an adverse environmental impact (e.g., the purchase of land where use will remain unchanged). Normally, purchases of long lead time items have no adverse environmental impact. However, site preparation or construction at or near a proposed site normally will have an adverse environmental impact; and b. The expenditure is minimal. To be minimal, the expenditure must-- (1) Be only the amount prudently necessary to maintain project schedule (appropriate cancellation clauses are recommended); (2) Not compromise the objectivity of NASA's environmental review. 3.4.4 It is ordinarily presumed that, except in unusual circumstances, expenditures up to 10 percent of the proposed project's or activity's cost will not compromise the objectivity of NASA's review and decisionmaking. Whether or not expenditures above that level would compromise the Agency's decisionmaking should be considered on a case-by-case basis, taking all relevant circumstances into account. For space flight projects, the relevant total cost includes those related to planning, design, construction, and launch. 3.4.5 Where a programmatic NEPA document is being prepared, expenditures should normally not exceed 10 percent for any individual mission or project within the program (see section 7.6 for more information). 3.5 Public Involvement 3.5.1 Public involvement is one of the key elements in any agency NEPA compliance activity and is to be encouraged. The public is broadly defined as individuals, community and private organizations, and environmental interest groups. Both CEO and NASA regulations focus on the role of public participation in the preparation of NEPA documents. CEO regulations (40 CFR §1506.6) require Federal agencies to make diligent efforts to involve the public in implementing their NEPA procedures. NASA regulations provide the overall framework for involving the public in the NEPA process, paralleling the requirements of CEO regulations. 3.5.2 NASA's regulations also specify the principal contact for obtaining information about NASA's NEPA activities and identify the lead responsibilities for ensuring public involvement in the NEPA process. The following specific responsibilities apply: a. Principal contact for information on EIS's, exceptional action EA's (see section 5.5), and NASA's NEPA process is the NASA NEPA Coordinator, EMD. For all other EA's, the principal contact is the EMO. b. Lead responsibility for ensuring public participation in NASA's NEPA compliance activities lies with the Sponsoring Entity. The specific responsibility rests with the managers in charge of the individual programs and projects (and the associated NEPA requirements) within each of these major activities assisted by the EMO and the Public Affairs Office (PAO). c. For preparation of an EA or EIS, the Sponsoring Entity is responsible for maintaining a mailing list of Federal, State, and local agencies, organizations and individuals that have jurisdiction over the action, have specialized expertise, would be affected, express interest, or provide comments and concerns. This list is used in the public involvement process and is an essential part of the administrative record (see section 3.7.7). 3.5.3 It is recommended that the Sponsoring Entity coordinate with the PAO throughout the EA or EIS process. The local PAO may participate, as appropriate, in preparing EA's and EIS's to ensure that public concerns are identified and resolved. PAO participation may include reviewing draft documents; generating comments; responding to public comments; arranging public scoping or participation meetings; preparing and distributing public notices; or communicating the results of EA's--Finding Of No Significant Impact (FONSI) or Notice of Intent (NOI)-- and EIS's Record of Decision (ROD). 3.6 Integrating NEPA with Other Environmental Review and Consultation Requirements 3.6.1 In accordance with CEO regulations 40 CFR §1500.4(k), §1500.5(g), §1502.25, and §1506.4, to the extent possible, NASA uses the NEPA process to document compliance with other environmental review and consultation requirements (e.g., other Federal statutes, regulations, and EO's (see Appendix H)). NASA uses the NEPA process as the focus for integrated and balanced environmental planning for all of its proposed programs, projects, and activities. While NASA regulations specifically reference Section 106 of the National Historic Preservation Act, Section 7 of the Endangered Species Act, and EO's 11988 and 11990 (Floodplain Management, and Protection of Wetlands, respectively), several other environmental requirements exist. 3.6.2 Table 3-2 lists selected environmental authorities, and Appendix H provides additional details. 3.6.3 It is important to understand early in project planning exactly what environmental statutes, regulations, and EO's apply to the proposed activity. Just as NEPA compliance can be a critical path item to implementing a project, one or more of these additional review requirements can become a critical path item to completing the NEPA process. For example, a proposed project that could adversely impact a structure on the National Register of Historic Places or the nesting habitat of a threatened or endangered species will require NASA to initiate consultation and review with the State Historic Preservation Officer or the U.S. Fish and Wildlife Service (or National Marine Fisheries Service), respectively. Normally, without resolving such substantive issues, it will be difficult, if not impossible, to determine whether there will be significant effects to the quality of the human environment.

Table 3-2. Summary of Consultation Requirements

<u>Statute/Executive Order Title</u>	<u>General Requirements</u>	<u>Specific Implications for Implementing the NEPA Process</u>	<u>Consultation Requirements</u>	<u>Estimated Time Required for Consultation and Compliance</u>
<u>EO 11514 (Amended by EO 11991). Protection and Enhancement of Environmental Quality, March 1970.</u>	<u>Requires Federal agencies to comply with CEO regulations implementing the procedural provisions of NEPA</u>	<u>Appropriate NEPA documentation must be prepared</u>	<u>As appropriate</u>	<u>As appropriate</u>
<u>Endangered Species Act of 1973, as amended (16 U.S.C. §1531 et seq.)</u>	<u>Identifies species endangered and threatened with extinction. Restricts actions that may harm these species or their habitat</u>	<u>If no previous NEPA documentation exists for the area of the prospective site, a biological survey and assessment may be required and included in the NEPA documentation to determine the potential presence of any species listed as endangered or threatened</u>	<u>Regional Director-U.S. Fish and Wildlife Service; Regional Director-National Marine Fisheries Service</u>	<u>Initial consultation typically 30 to 45 days; field surveys, if required, can extend in excess of 1 year to resolve possible seasonal issues</u>
<u>Fish and Wildlife Coordination Act (16 U.S.C. §661-666c)</u>	<u>Requires Federal agencies to consult with the U.S. Fish and Wildlife Service (and corresponding State agencies) whenever an agency plans to conduct an activity involving the impoundment, diversion, deepening, control, or modification of a body of water</u>	<u>Requirements would have to be considered during the environmental impact review process if construction could impact any natural surface water bodies</u>	<u>Regional Director-U.S. Fish and Wildlife Service; respective State fish and wildlife agencies</u>	<u>Initial consultation typically 30 to 45 days; field surveys, if required, can extend in excess of 1 year to resolve possible seasonal issues</u>

<a href="#">Archeological and Historic Preservation Act of 1974 (16 U.S.C. §469-469c); National Historic Preservation Act of 1966, as amended (16 U.S.C. §470-470c)</a>	<a href="#">Federal agencies must adopt measures, when practical, to mitigate adverse effects on any structure or object eligible for inclusion in the National Register of Historic Places</a>	<a href="#">If no previous NEPA documentation exists for the area of the prospective site, a literature and records survey must be conducted to determine the potential for the presence of any properties that could qualify for listing as an historic site</a>	<a href="#">Advisory Council on Historic Preservation, respective State Historic Preservation Officers; other individuals and organizations with historical and cultural expertise</a>	<a href="#">Initial consultation typically 30 to 45 days; additional literature and field surveys, if required, can extend several months depending on nature and size of area of interest</a>
<a href="#">Native American Graves Protection and Repatriation Act (25 U.S.C. §3001 - 3013)</a>	<a href="#">Restricts disturbance of potential Native American burial grounds or other areas of cultural patrimony</a>	<a href="#">If no previous NEPA documentation exists for the area of the prospective site, a literature and records survey must be conducted to determine the potential for the presence of any restricted properties</a>	<a href="#">Respective State Historic Preservation Officers; respective local or regional Native American Historic Preservation Councils</a>	<a href="#">Initial consultation typically 30 to 45 days; additional literature and field surveys, if required, can extend several months depending on nature and size of area of interest</a>
<a href="#">EO 11593, Protection and Enhancement of the Cultural Environment, May 1971</a>	<a href="#">Mandates that Federal agencies strictly comply with the requirements of the National Historic Preservation Act of 1966, the Historic Sites Act of 1935, and the Antiquities Act of 1906</a>	<a href="#">If no previous NEPA documentation exists for the area of the prospective site, a literature and records survey must be conducted to determine the potential for the presence of any properties that could qualify for listing as an historic site</a>	<a href="#">Advisory Council on Historic Preservation, respective State Historic Preservation Officers; other individuals and organizations with historical and cultural expertise</a>	<a href="#">Initial consultation typically 30 to 45 days; additional literature and field surveys, if required, can extend several months depending on nature and size of area of interest</a>
<a href="#">Clean Water Act (33 U.S.C. §1251-1376 et seq.); Oil Pollution Control Act of 1990 (33 U.S.C. §2701 et seq.)</a>	<a href="#">Controls the siting and permitting of wastewater discharges to the waters of the United States, including jurisdictional wetlands</a>	<a href="#">Siting requirements may have to be considered if a facility will discharge contaminated wastewater to existing surface water bodies</a>	<a href="#">U.S. EPA, respective State Clean Water Act authorized agency</a>	<a href="#">Specific consultation requirements dependent on applicable regulations</a>
<a href="#">Noise Pollution and Abatement Act (42 U.S.C. §7641)</a>	<a href="#">All Federal agencies are required to comply with Federal, State, and local requirements respecting control and abatement of environmental noise to the same extent that any private person is subject to such requirements. NASA engine testing, launches and similar proposal activities have been excluded from this Act.</a>	<a href="#">Requirements would have to be considered during the environmental impact review process to determine if construction site and activities fall under jurisdiction of any Federal, State, or local regulation regarding the control of environmental noise</a>	<a href="#">Specific consultation requirements dependent on applicable regulations or ordinances</a>	<a href="#">Specific consultation requirements dependent on applicable regulations or ordinances</a>
<a href="#">Clean Air Act (42 U.S.C. §7401 et seq.)</a>	<a href="#">Establishes and enforces national air quality standards, requires Federal actions to conform to any State air quality implementation plan approved or promulgated under Section 110 of the Act</a>	<a href="#">Consultation may be required to assess existence and applicability of respective State implementation plan</a>	<a href="#">U.S. EPA, respective State Clean Air Act authorized agency</a>	<a href="#">Specific consultation requirements dependent on applicable regulations</a>
<a href="#">Pollution Prevention Act of 1990 (42 U.S.C. §13101-13109)</a>	<a href="#">Anyone required to submit an annual toxic chemical release form under Superfund Amendments and Reauthorization Act (SARA). Section 313 must also include with each filing a report on hazardous waste source reduction and recycling.</a>	<a href="#">Probably no impact on EA or EIS process; pollution prevention considerations must be included in facility design and operating plans.</a>	<a href="#">None</a>	<a href="#">None</a>
<a href="#">EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, February 16, 1994</a>	<a href="#">Federal agencies shall make achieving environmental justice part of its mission by identifying and addressing disproportionately high and adverse human health or environmental effects of its activities on minority and low-income populations</a>	<a href="#">Requirements would have to be considered during the environmental impact review process if programs, policies, and activities could impact any minority or low-income populations</a>	<a href="#">No specific consultations required</a>	<a href="#">None</a>
<a href="#">EO 12843, Procurement Requirements and Policies for Federal Agencies for Ozone-Depleting Substances, April 1993</a>	<a href="#">Federal agencies are required, to the extent practical, to comply with Clean Air Act requirements regarding stratospheric ozone protection, maximize use of safe alternatives to and evaluate present and future uses of ozone-depleting substances</a>	<a href="#">Requirements would have to be considered during the environmental impact review process if construction or operation involved use of ozone-depleting substances</a>	<a href="#">No specific consultations required</a>	<a href="#">None</a>



<a href="#">EO 11738, Providing for Administration of the CAA and the Federal Water Pollution Control Act with Respect to Federal Contracts, Grants or Loans, September 1973</a>	<a href="#">Prohibits Federal agencies from undertaking procurements with any facilities that have been convicted of an offense under the Clean Air Act or the Water Pollution Control Act</a>	<a href="#">Probably no impact on EA or EIS process; would impact facility design and operating plans</a>	<a href="#">None</a>	<a href="#">None</a>
<a href="#">Farmland Protection Policy Act (7 U.S.C. §4201 et seq.)</a>	<a href="#">Major Federal actions must be reviewed to determine if any land designated either as prime or unique farmland or farmland of State or local importance will be affected</a>	<a href="#">Requirements would have to be considered during the environmental impact review process if construction could impact any designated prime or unique farmland</a>	<a href="#">U.S. Department of Agriculture (criteria promulgated in 7 CFR §658), and respective State agriculture agencies</a>	<a href="#">Initial consultation typically 30 to 45 days</a>
<a href="#">Wild and Scenic Rivers Act of 1965 (16 U.S.C. §1271 et seq.); Wilderness Act (16 U.S.C. §1131 et seq.)</a>	<a href="#">Designated areas are protected from development or from effects of construction</a>	<a href="#">Requirements would have to be considered during the environmental impact review process if construction could impact any designated wilderness area or protected river</a>	<a href="#">U.S. Forest Service or Department of Interior depending on jurisdiction</a>	<a href="#">Initial consultation typically 30 to 45 days</a>
<a href="#">Coastal Zone Management Act of 1972 (16 U.S.C. §1451 et seq.)</a>	<a href="#">Any Federal action that directly affects a coastal zone must be consistent, to the maximum extent practical, with the approved State coastal zone management program</a>	<a href="#">Requirements would have to be considered during the environmental impact review process if construction could impact any coastal zone, as defined by the individual State management program</a>	<a href="#">Respective State coastal zone management agencies; U.S. Fish and Wildlife Service, if Federally controlled areas involved</a>	<a href="#">Initial consultation typically 45 to 60 days</a>
<a href="#">EO 11988 (Amended by EO 12148), Floodplain Management, May 1977</a>  <a href="#">All construction is to be in accordance with the standards and criteria promulgated under the National Flood Insurance Program</a>	<a href="#">Executive agencies are to avoid actions, to the maximum extent practicable, that may be located in or have adverse effects on floodplains</a>	<a href="#">Requirements would have to be considered during the environmental impact review process if construction would be in or could impact any designated floodplain. Location in a floodplain must be avoided if a practicable alternative exists</a>	<a href="#">Regional COE or State floodplain management agency may be consulted if appropriate; specific requirements promulgated at 40 CFR §6, Appendix A</a>	<a href="#">Specific consultation requirements dependent on applicable requirements</a>
<a href="#">EO 11990, Protection of Wetlands, May 1977</a>	<a href="#">Executive agencies are to avoid, to the maximum extent practicable, long- and short-term adverse impacts associated with the destruction or modification of wetlands wherever there is a practical alternative</a>	<a href="#">Requirements would have to be considered during the environmental impact review process if construction could impact any designated wetland. Location in a wetland must be avoided if a practicable alternative exists</a>	<a href="#">State wetlands management agency, U.S. Fish and Wildlife may be consulted if appropriate; specific requirements promulgated at 40 CFR §6, Appendix A</a>	<a href="#">Specific consultation requirements dependent on applicable requirements</a>
<a href="#">Safe Drinking Water Act of 1974 (42 U.S.C. §300 et seq.)</a>	<a href="#">Establishes and enforces national drinking water quality standards; protects underground drinking water sources</a>	<a href="#">Consultation required if facility is to be constructed at or near an area of a designated sole, special, or principal drinking water aquifer</a>	<a href="#">Regional U.S. EPA, respective State Safe Drinking Water Act authorized agency, regional U.S. Geologic Survey</a>	<a href="#">Initial consultation typically 30 to 45 days</a>
<a href="#">Resource Conservation and Recovery Act (42 U.S.C. § 6901-6993 et seq.)</a>	<a href="#">Controls the siting and permitting of facilities that will treat, store and/or dispose of hazardous waste materials</a>	<a href="#">Siting requirements may have to be considered if facility will store hazardous wastes for greater than 90 days</a>	<a href="#">U.S. EPA, respective State RCRA authorized agency</a>	<a href="#">Specific consultation requirements dependent on applicable regulations</a>
<a href="#">EO 12088, Federal Compliance with Pollution Control Standards, (amended by EO 12580) October 1978</a>	<a href="#">Executive agencies are to comply with all applicable pollution control standards and requirements that would apply to a private person</a>	<a href="#">Probably no impact on EA or EIS process; would impact facility design and operating plans</a>	<a href="#">None</a>	<a href="#">None</a>
<a href="#">EO 12856, Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements, August 1993</a>	<a href="#">Establishes applicability of Emergency Planning and Community Right to Know and the Pollution Prevention Act to all Federal facilities. Requires developing a pollution prevention strategy to achieve goal of 50% reduction in total releases of toxic chemicals by 2000 (12/31/99)</a>	<a href="#">Probably no impact on EA or EIS process; would impact facility design and operating plans</a>	<a href="#">None</a>	<a href="#">None</a>

<a href="#">EO 12873, Federal Acquisition, Recycling, and Waste Prevention, October 1993</a>	<a href="#">Executive agencies are required to implement affirmative procurement programs in accordance with Resource Conservation and Recovery Act §6002 regarding the acquisition of environmentally preferred products</a>	<a href="#">Probably no impact on EA or EIS process; would impact facility design and operating plans</a>	<a href="#">None</a>	<a href="#">None</a>
<a href="#">EO 12902, Energy Efficiency and Water Conservation at Federal Facilities, March 1994</a>	<a href="#">Requires Federal agencies to achieve 30% reduction in energy consumption and 20% increase in energy efficiency by 2005. Agencies are required to conduct comprehensive facility audits to identify the means to achieve the energy savings</a>	<a href="#">Probably no impact on EA or EIS process; would impact facility design and operating plans</a>	<a href="#">None</a>	<a href="#">None</a>
<a href="#">EO 13148, Greening the Government Through Leadership in Environmental Management, April 2000</a>	<a href="#">Requires Federal agencies to incorporate environmental management systems into agency day-to-day decisionmaking and long term planning processes. Pollution prevention is highlighted as a key aspect to the environmental management system processes. In addition, this EO incorporates the Presidential Memorandum for the Heads of Executive Departments and Agencies on Environmentally and Economically Beneficial Practices on Federal Landscaped Grounds dated August 22, 1994. It promotes the sustainable management of Federal facility lands through implementing cost-effective, environmentally sound landscaping practices, and programs to reduce adverse impacts to the natural environment.</a>	<a href="#">Normally little impact on EA or EIS process; would impact facility design and operating plans</a>	<a href="#">None</a>	<a href="#">None</a>
<a href="#">Marine Mammal Protection Act of 1972 (16 U.S.C. §1361 et seq.)</a>	<a href="#">Prohibits taking or harassment of any marine mammals except incidental taking during commercial fishing, capture under scientific research, harvest by Native Americans, and on case-by-case basis</a>	<a href="#">Probably no impact on EA or EIS process; might impact facility design and operating plans</a>	<a href="#">As appropriate</a>	<a href="#">As appropriate</a>
<a href="#">Migratory Bird Treaty Act of 1972 (16 U.S.C. §703-711)</a>	<a href="#">Protects many birds, even some that may not individually migrate, by limiting transportation, importation, killing, or possession of those birds</a>	<a href="#">Might have impact on EA or EIS process; facility design, and operating plans</a>	<a href="#">As appropriate</a>	<a href="#">As appropriate</a>

3.6.4 In some cases, completing the NEPA process can be a prerequisite to completing one or more other statutory environmental review requirements. For example, an agency is considering a proposed activity that under its NEPA regulations requires an EIS, and part of the proposed activity entails dredging and filling in a navigable body of water. The dredge and fill activity would require a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers (hereinafter referred to as the COE). Such a permit can require the COE to prepare an EA or EIS as a precondition. By agreement with the COE, the agency could incorporate the COE's NEPA requirements into its EIS, thus, satisfying both agencies' NEPA requirements. In this manner both agencies' NEPA compliance regulations can be completed without having to perform the processes in sequential order.

3.6.5 The NEPA process can also simplify compliance with other environmental mandates. For example, Clean Air Act permits are required before project construction or operation can begin. By integrating NEPA into the project planning process, these permit requirements would be identified early. The NEPA process, with its emphasis on analysis of alternatives, would assist planners in considering control techniques and strategies for Clean Air Act compliance. This analysis would benefit the air permit application process initiated later in the project cycle, potentially reducing the lead time needed to obtain the permits.

3.7 The NEPA Process

3.7.1 The following are three types or levels of NEPA process and documentation:

- a. Categorical Exclusion (CatEx)-documents proposed actions or activities that the agency has designated as normally having no significant impacts on the human environment; the decision is normally documented with a Record of Environmental Consideration (REC).
- b. EA-documents proposed actions or activities that may possibly have a significant impact on the human environment, but it is unclear. It is suggested that a decision to prepare an EA be concisely documented with a memorandum to file or a REC. An EA supports a decision whether or not to prepare an EIS. The analysis is ultimately documented with either a FONSI or an NOI to prepare an EIS.
- c. EIS-documents proposed actions or activities expected to have a significant impact on the quality of the human environment. An EIS describes the environmental impacts of the proposed action, the no-action alternative, and other reasonable alternatives. The process culminates in a decision that is documented by a ROD.
- d. These three levels of NEPA process and documentation are integral components of the overall NEPA process and are discussed individually in chapters 4, 5, and 6.

3.7.2 NASA regulations provide for a fourth primary NASA environmental document: the Environmental Resources Document (ERD). Each NASA Center must prepare and maintain an ERD to serve as a baseline description of all environmental aspects of Center operations at the time of the ERD's preparation (see chapter 9).

3.7.3 Background and Definitions

3.7.3.1 The basic objectives of the NEPA process are to protect and enhance the quality of the human environment through--

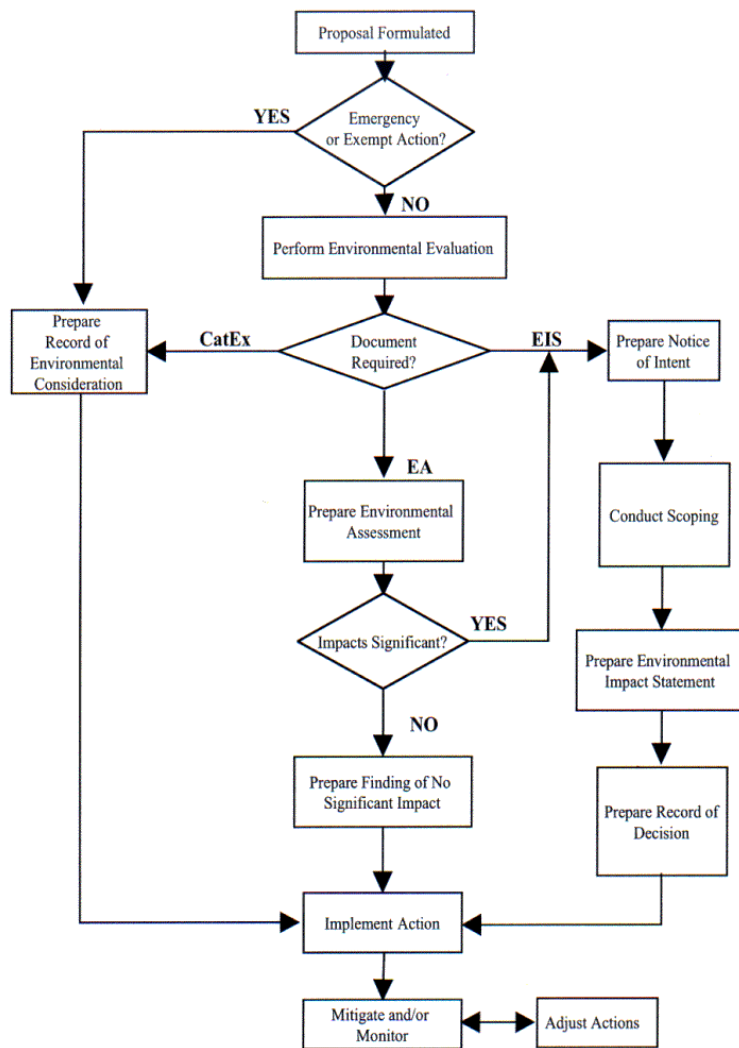
- a. Integrating environmental considerations into the planning of agency actions at the earliest practical stage;
- b. Ensuring that environmental as well as technical and economic considerations are weighed during decisionmaking before actions are taken; and
- c. Ensuring that the decisionmaker and the public are aware of the environmental consequences of proposed agency actions and that informed decisions are made.

3.7.3.2 In accomplishing these objectives, agencies are required to use a systematic, interdisciplinary approach to planning and decisionmaking (see Section 102(2)(A) of NEPA). The basic intent of the NEPA process is to determine if an agency's proposal is a major Federal action significantly affecting the quality of the human environment (40 CFR §1502.3). CEO regulations define this terminology as follows--

- a. A proposal exists at a point in the planning process when an agency has a goal and is actively preparing to make a decision on one or more alternative actions to implement the goal (40 CFR §1508.23). A proposal exists at a stage in project or program development when the environmental effects can be meaningfully evaluated. This milestone often coincides with the end of the conceptual design or planning stage of project development. An environmental evaluation should be prepared in the project development phase (see section 3.4.2).
- b. The term Federal action includes, without limitation, NASA activities, operations, projects, and programs involving construction, rehabilitation, or modification of facilities; space flight projects; new or continuing research and development activities that have changed materially in scope; permits or agreements with other Federal, State, local, or private parties involving the use of NASA property, facilities, or services; joint participation with other parties in activities, operations, projects, and programs; purchase, sale, or transfer of property; closure of facilities; and funding other parties' activities.
- c. A major Federal action is a special form of Federal action, defined as an action that may have significant environmental effects and that is potentially subject to Federal control and responsibility (see 40 CFR §1508.18 and section 6.2 for examples).
- d. Federal actions include, but are not necessarily limited to, "new and continuing activities, including projects and programs entirely or partly financed, assisted, conducted, regulated, or approved by Federal agencies; new or revised agency rules, regulations, plans, policies or procedures; and legislative proposals."
- e. A major Federal action can exist when responsible officials fail to act, and that failure is subject to review by courts or tribunals under the Administrative Procedure Act or other applicable law as

an agency action. Thus, a major Federal action is a Federal action that might have a significant effect on the environment. 1. Significantly describes both the context and intensity of the effects or impacts a proposal can have on the human environment (40 CFR §1508.27). (1) Context means that an action must be analyzed in several contexts, such as society as a whole (human and national); the affected region; the affected locality; and the affected interests. Both short- and long-term effects should be considered. (2) Intensity refers to the severity of the impact(s), including beneficial and adverse impacts. Additional considerations include the degree of impacts on public health and safety; unique features of the area impacted (e.g., historic or cultural resources, wetlands, scenic rivers, and other protected resources); the degree to which the effects on the quality of the human environment are likely to be controversial; the degree of uncertainty in the impacts; and unique or unknown risks. (3) Intensity also includes the degree to which the action would set precedent for future actions with significant effects or represents a decision in principle about future actions. It also refers to whether the action is related to other actions with individually insignificant impacts that considered together would have cumulatively significant impacts. (4) Intensity also refers to whether the proposal could potentially threaten or violate a Federal, State, or local law or other environmental protection requirements. g. Affecting refers to the effects or impacts the proposal may or would have on the human environment (40 CFR §1508.3 and §1508.8) and includes the following: (1) Direct effects or impacts caused by the action occurring at the same time and place, and (2) Indirect effects caused by the action at a later time or at a place removed in distance from the action, but are reasonably foreseeable (e.g., boom town effects on a nearby local community or reduction in downstream fisheries from the project's waterborne effluents). h. Human environment is a comprehensive term that "includes the natural and physical environments and the relationship of people with that environment" (40 CFR §1508.14). Within this context, CEO regulations further note that-- (1) If social or economic effects are the only impacts of a proposed action, an EIS or an EA is not required, and (2) When social and/or economic impacts are interrelated to impacts on the natural and/or physical environments, they must be discussed in the EIS or EA. 3.7.3.3 Typical elements of the environment and categories of impacts considered in the NEPA process are noted in sample environmental evaluation checklists included in Appendix I. 3.7.4 How the NEPA Process Works 3.7.4.1. Referring to Figure 3-1, the nominal flow of the process begins when the proposal is formulated. The process is characterized by a number of decision points (e.g., is it an emergency or exempt action and what level of NEPA documentation is required). 3.7.4.2. Each major decision point should be documented for the administrative record, especially if the decision will lead to a less intensive NEPA process than normally required for a similar action. Written records of some type, such as internal memoranda, memoranda to file, or a REC, are recommended that indicate the decisions made and the factors that led to that decision. (A REC is a multifunction document that lends itself to this purpose.) a. If the proposal is to proceed with an action under emergency circumstances, normal NEPA rules do not immediately apply even if the action would result in significant impacts on the human environment. Under emergency circumstances, actions can proceed immediately. Through proper environmental planning, the need for "actions under emergency circumstances" status can be kept at a minimum. Special rules do apply, however, and are addressed in more detail in section 7.2. b. If the proposed action is exempt by law from NEPA requirements (e.g., judicial or administrative enforcement actions or Federal statute expressly excluding NEPA applicability), the action can proceed immediately. c. Classified actions or the classified portions of proposed actions are not exempt from NEPA; however, they are subject to special rules discussed in section 7.3. d. Excluding these special categories of actions, all other NASA proposals are subject to the normal flow of the NEPA process. 3.7.4.3. After a proposal is formulated, the Sponsoring Entity performs an environmental evaluation in consultation with the local EMO. An environmental evaluation is a preliminary review that determines aspects of the proposal likely to result in some level of environmental impact or that are of potential concern. The environmental evaluation also assists in determining the appropriate level of NEPA documentation (i.e., CatEx, EA, EIS) for the proposal. Using a comprehensive checklist is highly recommended because it can provide structure and a level of rigor to this early evaluation of the proposal, helping to ensure that pertinent considerations are not overlooked (see Appendix I for examples of environmental evaluation checklists presently used by NASA facilities). a. The Sponsoring Entity may decide to go directly to an EA or EIS review if it is known that environmental impacts will occur, or simply that the planning and decisionmaking process would benefit from a more detailed NEPA review. It is recommended that this decision be concisely documented with a memorandum for file or a REC.

Figure 3-1. The NEPA Process



b. If the proposal qualifies for a CatEx, a REC is prepared documenting the determination, and the proposed action can proceed. CatEx actions should be monitored to determine if any changes occur requiring further NEPA review (see chapter 4 for details of the CatEx process). c. If a CatEx is not appropriate to the proposal, then either an EA or EIS applies: it is suggested that either decision be documented. d. A number of initial planning and scoping activities are initiated for proposals requiring an EA or EIS. These include, but are not necessarily limited to, the following: (1) The need for and/or purpose of taking an action is identified and defined, (2) An alternatives analysis is initiated to determine reasonable alternatives to the proposed action that will be evaluated in the EA or EIS (see section 3.7.5). (3) Key environmental issues associated with the action are also identified and the means to address those issues determined. (4) Other applicable environmental review requirements that may need to be integrated into the EA or EIS are identified (see section 3.6). (5) The need for or desirability of a cooperating agency(s) is determined (see section 7.16). (6) A list of potentially affected or interested agencies, organizations, Indian tribes, and individuals is developed to support the public involvement process. and (7) A public involvement plan is developed consistent with the requirements of the EA or EIS process, the level of potential controversy associated with the action, the scope of the action (local or national), and magnitude of the potential environmental impacts (see section 3.5). 3.7.4.4 If the action normally requires an EA or if it is unclear that significant impacts would ensue, an EA is prepared. An EA evaluates the proposed action and alternatives to determine if significant impacts to the human environment would occur, thus necessitating preparation of an EIS (see chapter 5 for details of EA preparation). The following items illustrate decision points in the EA process. a. If an EA presents information that indicates significant impacts to the human environment would occur, an NOI to prepare an EIS is prepared and published, which initiates the EIS process (see chapter 6). b. If no significant impacts would occur, the finding or decision to proceed is documented in a FONSI, and the FONSI is published (chapter 5). The action can proceed contingent upon employing impact mitigation measures found necessary or prudent and committed to in an EA and FONSI. Implementation of mitigation is monitored. Section 7.10 discusses mitigation that eliminates the need to issue an EIS (i.e., a mitigative FONSI). c. The amount of preparation time needed to complete an EA averages around 6 months; depending on complexity, it can range up to 18 months. 3.7.4.5 If the action normally requires an EIS, a detailed EIS addressing the proposed action and the range of reasonable alternatives is prepared (see chapter 6 for details of EIS preparation). An EIS requires the most detailed analyses of any NEPA documentation. a. Following preparation of an EIS, a ROD is issued before taking final action on the proposal. The ROD is followed by implementing any mitigation measures committed to in the EIS and ROD. During implementation, the project is monitored for any changes that could merit further NEPA review or revised mitigation measures. b. It takes an average of 12 to 18 months to complete an EIS. However, it can take significantly longer if controversial activities are involved or the environmental analysis techniques are complex. 3.7.5 Alternatives Analysis 3.7.5.1 Alternatives analysis lies at the core of the NEPA process and compliance. It is an essential element in planning and preparing EA's and EIS's to enhance decisionmaking. Alternatives, including the No-Action alternative, must be evaluated alongside the proposed action in EA's and EIS's. Additional analysis of alternatives may be required by another environmental statute or mandate (e.g., National Historic Preservation Act) or EO (e.g., EO 11988, Floodplain Management) that applies to the proposed action or alternatives being considered. 3.7.5.2 Within the NEPA process, there are only two instances when alternatives do not need to be considered: actions qualifying for a CatEx and actions exempt from NEPA by law. 3.7.5.3 NEPA and CEO regulations require that the alternatives considered in detail in the NEPA process be reasonable. To be considered reasonable, alternatives must be-- a. Technically feasible and capable of accomplishing the purpose and need, b. Economically feasible, not requiring the agency to expend exorbitant funds to develop or implement, and c. Available within the timeframe of the action; specifically, a reasonable alternative is not speculative or potentially available at some indeterminate point in the future. 3.7.5.4 CEO regulations require consideration of the No-Action alternative in all EA's and EIS's. a. The No-Action alternative is defined as no change from existing conditions (i.e., continuing rather than modifying existing programs or activities). b. The No-Action alternative can also mean that the proposed action would not take place and the purpose and need to be met by the proposal would not be accomplished. c. The No-Action alternative does not necessarily equate to no environmental impacts. While in many cases, the No-Action alternative may mean precisely that (e.g., do not construct a proposed building, thus, no land clearing,

no dust generation, and no noise), in other cases, taking no action (e.g., deciding not to replace old underground storage tanks) may well entail adverse environmental impacts (e.g., future tank failures with resulting groundwater contamination). 3.7.5.5 The range of alternatives that needs to be considered in the two types of documents differ. For example, in an EIS, a reasonable alternative can consist of an action not within the agency's jurisdiction. 3.7.6 Mitigation Measures 3.7.6.1 In implementing the decision, mitigation measures committed to in NEPA documentation (e.g., FONSI, ROD, or REC) must be instituted in a timely manner. Mitigation is often an integral part of preparing an EA or EIS. Mitigation includes measures taken to avoid or reduce the impact of a proposed action or alternatives to the proposed action. Mitigation guidance is provided in CEO regulations 40 CFR §1502.14(f), §1502.16(h), §1503.3(d) and §1508.20. CEO regulations (40 CFR §1508.20) define mitigation as-- a. Avoiding the impact entirely by not taking the action or certain parts of the action (e.g., relocating an activity to an existing facility to avoid construction impacts), b. Minimizing the impacts by limiting the degree or magnitude of the action and its implementation (e.g., planning construction during a time of year sensitive species are not nesting onsite), c. Repairing, rehabilitating, or restoring the affected environment (e.g., regrading to natural contours and reseeding after construction), d. Reducing or eliminating the impact over time by preservation and maintenance operations during implementation (e.g., dust control measures and restricting extremely heavy truck deliveries to the site during winter), and b. Compensating for the impact by replacing or providing for substitute resources or environments (e.g., creating new wetlands to compensate for filling existing wetlands). 3.7.6.2 Thus, mitigation can take a variety of forms. It can be an integral part of the proposed action or alternatives, or developed after the environmental consequences analysis indicates a need for mitigation. Mitigation measures, or a summary thereof, should be listed in a FONSI or a ROD. Mitigation measures associated with a proposed action or an alternative become a commitment and must be implemented in a timely manner when the chosen action is taken. If mitigation measures cannot be implemented for an exceptional action EA (see sections 5.5 and 5.7) or an EIS (see section 6.6), the local EMO will contact HQ/EMD promptly for resolution. 3.7.6.3 Mitigation to avoid an environmental impact, as well as mitigation measures that reduce an impact to nonsignificance, can make the difference in being able to support a FONSI. In the case of an EIS, mitigation can make the difference in the magnitude of environmental impacts or the alternative chosen for implementation. 3.7.6.4 All actions subject to NEPA review should be monitored during implementation. The nature and level of monitoring should be tailored to the nature and level of potential environmental impacts. Monitoring the action is necessary because-- a. Implementation of the action may reveal environmental impacts not anticipated in the EA or EIS (or occasionally, even in implementation of a CatEx), b. Conditions may change so that the mitigation measures are not having the anticipated effect in reducing the severity of impacts, or, c. New information may arise during implementation of the action that has a bearing on the perceived significance of the impacts. 3.7.6.5 Monitoring the action is intended to detect these conditions. The mitigation measures may need to be modified, and/or further NEPA documentation may need to be prepared, such as a supplemental EIS, a revised EA or FONSI, or a revised ROD (see section 7.10). Modifications to mitigation measures that may be needed to keep impacts within the bounds described in an EA or EIS should be documented in a REC, with justification provided for the change. Following changes, NASA's obligation to continue monitoring the action does not diminish. 3.7.7 Administrative Record 3.7.7.1 The administrative record is a common thread throughout the entire NEPA process. The Sponsoring Entity is responsible for developing and maintaining the administrative record. This record consists of the documents generated leading up to and during CatEx determination: EA preparation, including the FONSI (or the NOI); EIS preparation, including the ROD; and documents generated due to monitoring an action that are related to a decision to prepare additional NEPA documentation or revised mitigation measures. 3.7.7.2 The administrative record documents the decisionmaking process and forms the basis for defense against any challenges that may arise regarding the NEPA process and agency compliance. As such, the administrative record is subject to the Freedom of Information Act and formal discovery pursuant to administrative or judicial proceedings. The administrative record should include, but is not limited to the following: a. Public comments received during the process, b. Official agency comments (other Federal, State, local), c. Underlying studies and reports used to prepare the NEPA document, d. Environmental surveys and field study results, e. Copies of publicly distributed notices (e.g., newspaper notices and meeting notices), f. Location of NEPA-related documents referenced in the subject NEPA document, g. Maps and charts, h. Interagency official consultation records, i. List of non-NASA persons consulted (only those personal contacts for which there is written documentation contemporaneous with the consultation are relevant), j. Mailing list, and k. Location of references used in the subject NEPA document. 3.8 NEPA Noncompliance 3.8.1 Compliance with NEPA is subject to judicial review. It is imperative that NEPA procedural requirements be satisfied. Table 3-3 describes six potential pitfalls that may lead to noncompliance. 3.8.2 Failure to comply with NEPA can result in the program or project being slowed down or stopped until the NEPA process and documentation is completed, thereby adding delay, costs, and potentially jeopardizing a program or project. With successful completion of the NEPA process, the program or project can proceed on its normal course. 3.8.3 In the event of a successful court challenge, time is lost and resources are expended in dealing with the court action, schedules may be delayed, and programs or projects are put on hold until the NEPA process has been satisfactorily completed. 3.9 Deviations from NASA Regulations 3.9.1 NASA has provided for deviations from its NEPA regulations when good and valid reasons exist. When a Sponsoring Entity sees the need for a deviation from NASA or CEO regulations for its program or specific project, the Sponsoring Entity must immediately notify HQ/EMD with respect to the proposed deviation and supply the supporting justification. In no instance shall notification to HQ/EMD occur after implementing the deviation. Table 3-3. Potential Pitfalls of Noncompliance.

NEPA Noncompliance	Potential Concerns/Results
<u>Ignoring NEPA completely.</u>	<u>Very likely to lead to adverse court judgment, if challenged.</u>
<u>Failing to satisfy procedural requirements.</u>	<u>As a procedural statute, the steps are clearly outlined in NEPA implementing regulations. Failure to complete all the procedural requirements of the NEPA process is a primary cause for adverse judicial judgments.</u>
<u>Deciding on a course of action or effectively foreclosing alternatives before the NEPA process is complete.</u>	<u>When an agency lets the process of planning an action precede the NEPA process, NEPA becomes essentially a tool justifying prior or de facto decisions. This occurs when the obligation for NEPA compliance occurs too late or by inadvertently making hard commitments that limit the choice of alternatives or essentially drive the agency to choose a particular alternative. Hard commitments can include activities such as building or purchasing major long lead time components of a project (e.g., turbines); establishing design or operating requirements that essentially preordain that a particular alternative be chosen; or building foundations before the EA and FONSI are completed to support the new facility construction.</u>
<u>Faulty or weak technical analysis.</u>	<u>Can lead to erroneous conclusions regarding important environmental impacts. Can lead to faulty decisions successfully challenged in court.</u>
<u>Failure to evaluate reasonable alternatives.</u>	<u>Alternatives must be examined under NEPA, and they must be reasonable (see section 3.7.5). Further, a range of reasonable alternatives must be examined in an EIS; a failure to do so is one of the most common basis for litigation.</u>
<u>Segmentation.</u>	<u>When an agency subdivides a proposed action into component parts, and applies NEPA to each part individually, the net result is that each part is judged as having no significant impacts. If the proposed action had been analyzed as a whole, the combined impacts of those individual parts may have been found to have a significant impact. Defining the proposed action as an important part of the NEPA process, and it is discussed in more detail in chapters 5 and 6.</u>

3.9.2 If the Sponsoring Entity seeks a deviation from CEO regulations, HQ/EMD in coordination with the Office of the General Counsel will begin consultation with CEO, HQ/EMD, AAMS, and the Office of the General Counsel are the only appropriate NASA points-of-contact with CEO. 3.9.3 If the deviation is sought only from NASA regulations, the deviation may be approved by HQ/EMD. If that proposed deviation is substantial, HQ/EMD will consult with and obtain the concurrence of the Office of the General Counsel and may seek the views of CEO after coordination with the Office of the General Counsel.

## 2. Space, Aeronautics, and Technology Human Space Flight

# CHAPTER 4. Categorical Exclusions

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## 4.1 Categorical Exclusions

Categorical exclusions (CatEx) are the most common level of NEPA process and documentation, but they are the least visible and complex (see Figure 3-1). CatEx's are defined in Council on Environmental Quality (CEQ) regulations (40 CFR §1508.4), as a "category of actions that do not individually or cumulatively have a significant impact upon the human environment" and that the given Federal agency has specifically identified in its regulations. Further, because actions in this category do not have a significant impact upon the human environment, they do not require preparing either an EA or an EIS, except under extraordinary circumstances (see section 4.3).

## 4.2 NASA Categorical Exclusions

4.2.1 NASA NEPA regulations at 14 CFR §1216.305(d) designate a wide variety of classes of actions as CatEx's. These actions include the following:

- a. Research and development activities in--
  - (1) Space science, other than specific spacecraft development and flight projects,
  - (2) Space and terrestrial applications, other than specific spacecraft development and flight projects,
  - (3) Aeronautics and space technology and energy technology applications, other than experimental projects that have the potential for substantial environmental impacts, and
  - (4) Space transportation systems engineering and scientific and technical support operations, routine transportation operations, advanced studies.
- b. Enhanced space tracking and data systems,
- c. Facility planning and design (funding),
- d. Minor construction of new facilities, including rehabilitation, modification, and repair, and
- e. Continuing operations of a NASA facility at a level of effort, or altered operations, provided the alterations induce only social and/or economic effects but no or minimal natural or physical environmental effects.

## 4.3 When a CatEx May Not Be Appropriate

4.3.1 Sometimes an action that normally qualifies as a CatEx may need to be subjected to either an EA or EIS level of NEPA process because of unique or extraordinary circumstances. Examples include--

- a. Proposals of greater scope or size than ordinarily encountered in the type of CatEx being considered (e.g., a research and development program that has expanded and now requires developing a new 10,000 square meter (100,000 square foot) laboratory facility),
- b. Proposals that use an unproven technology and have the potential for substantial environmental impacts,
- c. Proposals that would use or generate a hazardous, toxic, or radioactive substance that will come into contact with the environment,
- d. Proposals that would adversely impact an area of critical environmental concern (e.g., prime or unique

farmland, wetlands, and coastal zone areas),

e. Proposals that would adversely impact threatened or endangered species, critical habitat, archeological or historic sites, or other types of protected resources, and

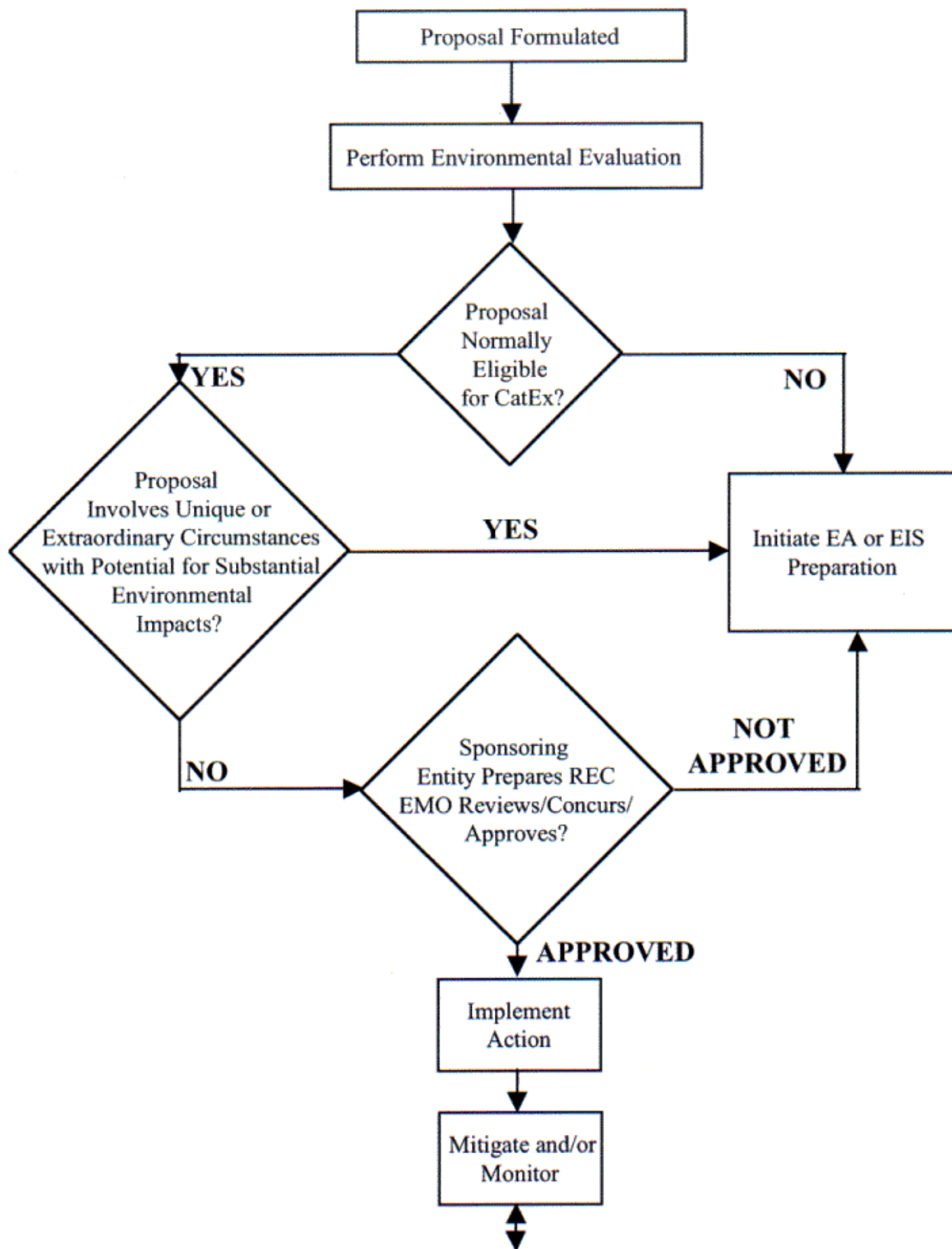
f. The environmental evaluation identifies environmental impacts of some level of significance that may be potentially substantial or are unclear.

## **4.4 Process for Making a CatEx Determination**

4.4.1 The process for making a CatEx determination is relatively simple (see Figure 4-1). Responsibility for seeking a CatEx determination for a proposed activity lies with the Sponsoring Entity. The local Environmental Management Office (EMO) makes the CatEx determination in consultation with the Sponsoring Entity.

4.4.2 The environmental evaluation assesses the proposal against those actions normally qualifying as CatEx's (see section 4.2), determining if unique or unusual circumstances apply (see section 4.3). If the environmental evaluation indicates that a CatEx is appropriate, the Sponsoring Entity documents this in a Record of Environmental Consideration (REC), with signature/approval by the local EMO.



**Figure 4-1. Process For Categorical Exclusion Determination**



## Adjust Actions

4.4.3 Elements of a REC include the following:

- a. Sponsoring Entity, name, and code,
- b. Project title,
- c. Brief description of the project (may be provided elsewhere),
- d. Anticipated start date and duration,
- e. Basis for determination, and
- f. EMO approval/signature/date block, with a decision to approve or deny CatEx or to prepare an EA or EIS.

4.4.4 Appendix I provides examples of REC's presently used by NASA.

4.4.5. The basis for a CatEx determination could include if the proposal--

- a. Is clearly listed in 14 CFR §1216.305(d),
- b. Does not individually or cumulatively result in a change in environmental conditions,
- c. Results only in social or economic effects,
- d. Does not result in public environmental controversy, or
- e. Does not result in modifying existing permits or require new permits.

4.4.6 The Sponsoring Entity can then proceed with the proposal, monitoring, to the extent prudent, for changes or circumstances during implementation that could require additional NEPA review (e.g., an EA or EIS) (see Figure 3-1). If a CatEx is determined to be inappropriate, plans are then made to prepare either an EA (see chapter 5) or an EIS (see chapter 6). The typical roles and responsibilities for the CatEx process are summarized in Table 4-1.

4.4.7 There may be instances where there are potential environmental concerns, but further review and studies indicate there is little potential for significant environmental impact. For example, a cultural resource issue may have been resolved with a no adverse effect determination after field studies and consultation with the State Historic Preservation Officer. In such an instance, the REC should be augmented by attaching appropriate documentation that resolves the potential concern.

Table 4-1. Typical Roles and Responsibilities for the CatEx Process<sup>1</sup>

Function	Sponsoring Entity	Local EMO	HQ/EMD	Center Director	AAMS <sup>2</sup>	Other AA <sup>3</sup>	Strategic Enterprise AA
				Environmental Evaluation/Checklist			
Prepare	x	x					
Review/Concur	x	x					

				<b>REC (for CatEx)</b>			
Prepare/ Recommend	x	x					
Review/Concur	x	x					
Signature		x					

<sup>1</sup> More than one x in a row indicates a collaborative effort between specified parties

<sup>2</sup> AAMS = Associate Administrator for Management Systems

<sup>3</sup> AA = Other Associate Administrators, Office of the General Counsel

## 4.5 CatEx's That May Not Require a REC

4.5.1 Certain classes of categorically excluded actions have no potential for substantial effects, individually or cumulatively, on the quality of the human environment. The following examples include, but are not limited to, NASA actions not expected to have a substantial impact on the environment and that should be considered categorically excluded:—

- a. Preparation of regulations, directives, manuals, or other guidance documents that implement (without substantial change) regulations, directives, manuals, or other guidance documents from NASA Headquarters or other Federal agencies,
- b. Routine personnel actions,
- c. Routine procurement of goods and services,
- d. Continuation of actions, if there is no change from previously existing conditions, scope, or level of activity,
- e. Study efforts that involve no commitment of resources other than personnel and funding allocations,
- f. Policy development, planning, and implementation that are related to routine activities, such as personnel, organizational changes, or similar administrative functions,
- g. Activities that deal solely with the functions of programs, such as program budget proposals, disbursement, transfer, or reprogramming of funds,
- h. Public education and information programs and activities,
- i. Administrative, classroom, or observational in-house training,
- j. Purchase of land where existing use will remain unchanged,
- k. Internal modifications or equipment additions (e.g., computer facilities and relocating interior walls) to small structures or buildings,
- l. Ordinary maintenance or replacement of equipment or small structures (e.g., utility pole structures, microwave facilities, and valves),
- m. Testing work (e.g., test borings or cores and water test wells),
- n. Studies and engineering undertaken to define a proposal or alternatives sufficiently so that environmental effects can be assessed,

- o. Storage of non-hazardous materials (i.e., those that are not ammunition, explosives, pyrotechnics, radioactive, and other hazardous or toxic materials), and
- p. Routine repair and maintenance of buildings, roads, airfields, grounds, and equipment that do not increase or alter existing functions.

4.5.2 The local EMO should review the above actions to determine whether a REC should be prepared, taking into account the circumstances and processes of their respective facility.

# CHAPTER 5. Environmental Assessments

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## 5.1 Environmental Assessment

5.1.1 An Environmental Assessment (EA) can be viewed as an intermediate level of NEPA documentation (see Figure 3-1). In terms of the level of analysis and complexity of documentation, an EA is approximately midway between a CatEx and an EIS. As stated in NASA NEPA regulations (40 CFR §1216.305), an EA is used when the proposed activity or action does not qualify as a CatEx or normally require an EIS (see section 3.7.1).

5.1.2 An EA is defined in Council on Environmental Quality (CEQ) regulations (40 CFR §1508.9(a)) as a concise public document that performs the following functions: briefly provides sufficient evidence and analyses to determine if an EIS needs to be prepared, aids an agency's compliance with NEPA when an EIS is not necessary, and facilitates preparation of an EIS when necessary.

5.1.3 One of the principal functions of an EA is to evaluate the environmental effects of a proposed project and to determine whether an EIS must be prepared. If the analyses in the EA support the conclusion that no significant environmental impacts would occur, a FONSI is prepared and the action can proceed. If significant impacts may occur as a result of implementing the action, a Notice of Intent (NOI) to prepare an EIS is prepared and preparation of the EIS begins. Thus, the thrust of environmental analysis for an EA differs from that for an EIS. The evaluation in an EA presents information sufficient to determine whether or not there may be significant impacts that merit more detailed study, analysis, and public input. An EIS presents the results of the detailed study and analysis and attempts to rigorously measure and present the nature and level of potential significance.

5.1.4 As a concise public document, at a minimum an EA must contain the following information and analyses (40 CFR §1508.9(b)):

- a. A brief discussion of the need for the proposed activity or action.
- b. A brief discussion of reasonable alternatives to the proposed activity or action. It should be noted that Section 102(2)(E) of NEPA requires alternatives (including the No-Action alternative) to be considered when the proposal involves unresolved conflicts concerning alternative uses of available resources.
- c. A brief discussion of the environmental impacts of the proposed activity or action, reasonable alternatives, and the No-Action alternative. Impact mitigation measures are also discussed if appropriate.
- d. A listing of agencies and persons consulted.

5.1.5 An EA should be written in plain language, avoiding technical jargon as much as possible. Appendices can be more technical, but nevertheless should be understandable. Conclusory statements (e.g., significant numbers of fish will die. . .) should be avoided unless supported by documented evidence. Moreover, less general categorical statements instead (e.g., 500 to 1000 fish may expire due to. . .) should also be avoided. To the extent possible, use meaningful quantitative measures in lieu of subjective language (e.g., large, small, and many).

5.1.6 An EA cannot be supplemented. If a change in the proposed action or anticipated environmental impacts of that action is small, a revised/modified FONSI would be prepared. If the change is more substantial, a new EA should be prepared.

5.1.7 The recommended format and required content for NASA EA's are discussed further in section 5.3.

## 5.2 Specific NASA Actions Normally Requiring an EA

5.2.1 Specific NASA actions that normally require an EA include, but are not limited to the following:

- a. Specific spacecraft development and flight projects in space science,
- b. Specific spacecraft development and flight projects in space and terrestrial applications,
- c. Specific experimental projects in aeronautics and space technology and energy technology applications that may have a substantial effect on the human environment,

- d. Development and operation of new space transportation systems and advanced development of new space transportation and spacecraft systems,
- e. Reimbursable launches of non-NASA spacecraft or payloads,
- f. Major Facility Construction and rehabilitation projects,
- g. Actions to alter ongoing operations at NASA facilities that could lead, either directly or indirectly, to natural or physical environmental effects, and
- h. Disposal or acquisition of real property (may require an EA).

5.2.2 Specific NASA actions listed above may involve actions at facilities that are considered Nonexceptional (i.e., localized environmental effects would be anticipated with only local public environmental controversy). For purposes of this NPR, these types of EA's are termed Nonexceptional actions. See section 5.4 for more details.

5.2.3 While most EA's address local actions that are confined entirely within a Center or facility, occasionally an action addressed by an EA may be exceptional. Exceptional actions (defined in section 5.5) are generally national in scope (i.e., multicentered with substantial environmental impacts at two or more NASA Centers, Component Facilities, or geographic locations) and/or have the potential for national environmental controversy.

## 5.3 Recommended Format and Content of an EA

### 5.3.1 Format

5.3.1.1 All NASA EA's should contain a title page with the recommended elements noted in Figure 5-1. The title page provides essential information: name of the Sponsoring Entity proposing the action, the specific NASA point of contact for the EA, and a brief abstract of the EA.

5.3.1.2 The major chapters typically included in an EA are specified in Figure 5-2 and are discussed in section 5.3.2.

### 5.3.2 Contents of EA Chapters

#### 5.3.2.1 Executive Summary

a. Although not specifically required by CEQ or NASA regulations, NASA EA's should normally contain an Executive Summary. The Executive Summary is normally no more than 3 pages in length and contains brief synopses of the following information: the underlying purpose and need of NASA action; description of the proposed activity or action; description of each reasonable alternative addressed in the EA, including the No-Action alternative; summary of the principal environmental issues assessed and the results; the extent of public and agency consultation used in preparing the EA; and a summary of major mitigation commitments. No conclusory statements regarding preference for alternatives or the applicability of a FONSI should be made.

b. The Executive Summary should be consistent with the information in the EA, address the entire document rather than just one part, and emphasize the differences in environmental impacts of the alternatives.

#### 5.3.2.2 Purpose and Need

a. This chapter sets the stage for assessing the alternative courses of action addressed in the EA (i.e., proposed action, reasonable alternatives, and No-Action). It should define the purpose and need for NASA action, not for the proposed action or the preferred alternative. The purpose and need is the problem or opportunity to which NASA is responding. This chapter should also establish the basis for evaluating alternatives (i.e., what do the alternatives need to be capable of accomplishing).

b. An appropriate statement of purpose and need for a hypothetical example could be--NASA Center N needs to meet stringent new wastewater effluent criteria for pollutants A, B, and C recently promulgated in EPA regulations under revisions to the Clean Water Act. An inappropriate statement of purpose and need in this example would be --NASA needs to construct a new centralized wastewater effluent treatment system capable of meeting revisions to the Clean Water Act for pollutants A, B, and C.

Figure 5-1. Sample Title Page for an Environmental Assessment

# ENVIRONMENTAL ASSESSMENT FOR NAME OF ACTION, LOCATION (e.g., CITY, COUNTY, AND STATE)

<b>Lead Agency:</b>	NASA, State name of Sponsoring Entity; name(s) of cooperating agency(s) if appropriate
<b>Proposed Action:</b>	Succinct statement of proposed action
<b>For Further Information:</b>	Name, title, address, and phone number of NASA Point of Contact
<b>Date:</b>	Date document is completed and available for public inspection
<b>Abstract:</b>	Brief abstract of the EA, stating proposed action, alternatives examined, and summary of key information. Do not make any conclusions regarding the advisability of a FONSI or NOI. (The abstract can be printed on a separate page after the title page, but it should be brief-no more than one or two paragraphs.)

Figure 5-2. Typical Table of Contents for an Environmental Assessment

<b>TABLE OF CONTENTS</b>	
<b><u>CHAPTER</u></b>	<b><u>PAGE</u></b>
EXECUTIVE SUMMARY	
TABLE OF CONTENTS	
1 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES (Subsections as needed)	

2	DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES
2.1	Proposed Action (Subheadings as needed)
2.2	Other Alternatives (Subheadings as needed)
2.3	No-Action (Subheadings as needed)
3	AFFECTED ENVIRONMENT
4	ENVIRONMENTAL CONSEQUENCES
4.1	Proposed Action (Subheadings as needed)
4.2	Other Alternatives (Subheadings as needed)
4.3	No-Action (Subheadings as needed)
5	MITIGATION AND MONITORING (Optional if needed)
6	AGENCIES AND PERSONS CONSULTED (Organize by Federal, State, and local agencies, and members of the public)
7	REFERENCES
	APPENDICES (if applicable)

#### 5.3.2.3 Description of Proposed Action and Alternatives

a. This chapter should contain concise statements of the proposed action and reasonable alternatives (including No-Action). Given the hypothetical statement of purpose and need provided in the previous section, the proposed action and alternatives statements could take the following form--

b. NASA Center N proposes to collect/consolidate its wastewater effluent streams containing pollutants A, B, and C and to construct a new centralized treatment facility at Site X capable of meeting revised Clean Water Act effluent standards for those pollutants.

c. Alternatives could take the following form:

(1) Alternative 1: NASA would expand and renovate each of its three existing wastewater treatment facilities to meet the revised Clean Water Act effluent standards for pollutants A, B, and C.

(2) Alternative 2: NASA would construct three new wastewater treatment facilities, each capable of meeting the revised Clean Water Act effluent standards for pollutants A, B, and C.

(3) Alternative 3: NASA would modify its existing processes to meet the revised effluent standards without modifying or constructing wastewater treatment facilities.

(4) No-Action.

d. The proposed action should then be described in sufficient detail to allow key environmental issues and impacts to be assessed and compared to those of the alternatives. Avoid too much or too fine a level of detail and too general and vague a description. Save details for those areas of the proposal that have a bearing on important environmental issues that will drive the decision whether or not an EIS is needed. Try to confine details to those elements that influence the magnitude of the environmental impacts. In addition, too much irrelevant detail can limit future flexibility in implementing the chosen action.

e. Alternatives in NEPA documents were addressed generally in section 3.7.5. Alternatives considered in an EA should focus on those relevant to the purpose and need. As with all alternatives evaluated in NEPA documents, the alternatives considered in an EA should be reasonable (i.e., technically and economically feasible) and available within the timeframe of the action (see section 3.7.5). Note potential alternatives reviewed but not considered further in the EA,



either because the alternatives could not accomplish the purpose and need or they had major environmental, technical, or economic concerns. Concisely identify the reasons the alternatives were not considered further. Following the previous examples, two other sites were considered as alternative locations: one would require construction within a wetland area for which no mitigation was possible, and the other would entail permanent loss of critical habitat for resident endangered species.

f. The level of detail describing the alternatives does not have to parallel that of the proposed action, but it should be sufficient to make comparisons with the environmental impacts of the proposed action. The same guidance applies to the No-Action alternative. A No-Action alternative very often has environmental impacts. For new projects, no action can mean doing nothing. For changes to ongoing activities, no-action can mean continuing with the present course of action. As with the other alternatives, the description of the No-Action alternative should be detailed enough so its scope is clear and its impacts can be compared with those of the proposed action and other alternatives.

g. Certain EA's (e.g., exceptional actions (see section 5.5)) may deal with proposed actions that could have greater potential for substantial impact on the human environment or may have the potential for heightened technical controversy nationwide. In cases such as these, a broader array of alternatives may need to be described, possibly in greater detail than normal.

#### 5.3.2.4 Affected Environment

The description of the affected environment should be brief, focusing on those elements of the environment likely to be affected by the proposed action and alternatives, including No-Action. The level of detail should be sufficient to provide the base against which environmental impacts can be addressed. For example, if the proposed action and alternatives would not impact groundwater resources, do not put time and detail into describing that aspect of the environment. If environmentally sensitive or protected resources (e.g., historic sites or endangered species) could be impacted, address them in this chapter of the EA. For more detailed information, refer readers to other available documentation (e.g., an Environmental Resources Document or other existing NEPA documents).

#### 5.3.2.5 Environmental Consequences

a. Because an EA deals principally with evaluating environmental impacts of the proposed action and making a decision whether or not an EIS is required, the focus of this EA chapter is the proposed action. Impacts should be discussed in proportion to their potential significance, clearly noting insignificant impacts and providing only enough information to indicate why further analyses are not needed. Both direct and indirect impacts (see section 3.7.3) should be addressed.

b. For some EA's that address more complex actions (e.g., exceptional action EA's), it is also useful if this chapter contains a summary comparison of the impacts of the proposed action and alternatives to help more sharply define differences for the decisionmaker. A matrix of alternatives versus environmental category (e.g., see the range of environmental categories listed in section 6.4.2) is often useful in making this comparison. To the extent possible, comparisons should be made in quantitative rather than qualitative terms.

c. This chapter should also address mitigation and monitoring measures that need to be employed to reduce the magnitude or avoid the environmental impacts of the proposed action and alternatives. Mitigation is important. Mitigation can often avoid a substantial impact or reduce the impact to a non-significant level, thus, preserving the ability to recommend a FONSI. Mitigation measures incorporated into the proposed action that support a FONSI become commitments on the part of NASA; therefore, they must be reflected in the FONSI and implemented.

d. Cumulative impacts of the proposed action shall also be addressed to determine significance. The potential exists for a proposed action that individually has nonsignificant impacts to result in significant impacts when combined with those of other reasonably foreseeable actions occurring in the same area and at the same time.

e. The discussion of the impacts of alternatives should also focus on those with the potential to be substantial. This discussion does not need to be at the same level of detail as the proposed action; however, it should be sufficient to enable meaningful comparison with the proposed action.

f. If a proposed action has caused or is likely to generate environmental controversy, the impact analyses associated with the proposed action and alternatives should be commensurably more detailed.

g. In rare cases, information needed to evaluate a key environmental issue in an EA will not be available or has not yet evolved to a stage where it can be used. Instances such as these are subject to special treatment. See section 7.9 for a discussion of incomplete and unavailable information.

h. For straightforward, uncomplicated EA's with only a few issues of potential environmental concern, combining the



Affected Environment chapter and the Environmental Impacts of Alternatives chapter may improve understanding while promoting brevity.

i. The last section of the consequences chapter shall include a brief discussion of permits, licenses and approvals required to be obtained before implementation of the action.

#### 5.3.2.6 Agencies and Persons Consulted

a. While preparing an EA, it may be advisable or necessary to consult with or seek comments from other Federal, State, regional, and local agencies; organizations; or members of the public who could be affected by the proposed action, have special expertise in an area of environmental concern, or have jurisdiction by law over all or parts of the proposed action. Early involvement can avoid unpleasant surprises when an EA and/or FONSI is made available for public review and comment. Indian tribes must be consulted if tribal lands would be affected. This chapter should list all agencies, organizations, and individuals contacted and consulted during EA preparation. This consultation list does not include entities within NASA or under contract to NASA with respect to the proposed action.

b. These contacts and consultations also become part of the administrative record. The administrative record should include records documenting all such contacts and consultations throughout the EA preparation process. (See section 3.7.7 for additional discussion pertinent to the administrative record.) Any agreements made during these consultations, alternatives suggested, and environmental concerns voiced should be documented and tracked to ensure they are addressed within the EA, or if they are not addressed, why not. Underlying documents or studies provided by agencies consulted that have a bearing on decisions made, alternatives or impacts addressed, or compliance with other statutory requirements, must be retained in the administrative record.

c. The extent of consultation and involvement in EA preparation should be consistent with the magnitude and complexity of the proposed action and its potential environmental effects. The potential for controversy regarding environmental issues would also be a factor in the extent and level of consultation.

d. In addition, a separate mailing list should be maintained for distributing the EA and/or the FONSI or NOI decision document (see sections 5.4 and 5.5). It should contain all agencies and individuals consulted and their complete addresses, as well as the names and addresses of other interested parties who have requested copies or who the Sponsoring Entity feels would be interested in or should have access to the EA and/or FONSI.

#### 5.3.2.7 References

a. All references cited in the EA must be listed (except classified references and otherwise restricted or proprietary materials (see section 7.3)).

b. The Sponsoring Entity should be satisfied that the referenced documentation contains the most current and best available information. Telephone or other oral communications are not valid references unless documented contemporaneously or shortly thereafter and the written record is provided to the participants.

c. It is also recommended that the Sponsoring Entity ensure that a copy of each cited reference be in its possession (or the possession of its NEPA contractor) or that it is available at a public repository.

d. CEQ regulations (40 CFR §1506.6(f)) require that underlying documents be made available to the public pursuant to the provisions of the Freedom of Information Act (5 U.S.C. § 522). Underlying documentation refers to studies and analyses prepared specifically in support of the NEPA document. It also includes interagency memoranda, where the memoranda transmits comments of a Federal agency on the environmental impacts of a proposed action. It may also include other official NEPA documents that are incorporated in whole or in part into the NEPA document being prepared. Underlying documents do not include general references in the open literature that may be cited, such as textbooks or published reports and analyses prepared for other purposes.

e. Care should be taken to avoid infringement of copyright laws. Copyrighted references should not be recopied and distributed to the public; rather, sufficient information regarding the provenance of each copyrighted reference should be provided to enable an interested person or organization to obtain the document from the publisher or a public repository.

f. Occasionally, concerned parties may request access to some or all of the references. By having all cited materials in its possession, the Sponsoring Entity can reply promptly to such requests. Again, care should be taken to avoid infringement of copyright laws.

#### 5.3.2.8 Appendices

Appendices are generally unnecessary in an EA, largely because an EA is a concise document. However, should

appendices be necessary, they should contain information that supports the content of and the results presented in the EA (e.g., the modeling conducted for assessing a potentially significant impact or an area of environmental concern). Appendices are also appropriate for analyses prepared under other environmental review requirements (e.g., a biological assessment for an endangered species) and for written communications from other agencies, especially communications that contain agency conclusions regarding potentially significant impacts and key environmental issues.

### 5.3.3 Editorial Suggestions

a. The following recommendations reflect NASA policy and will improve the NEPA process. The preparers of an EA should--

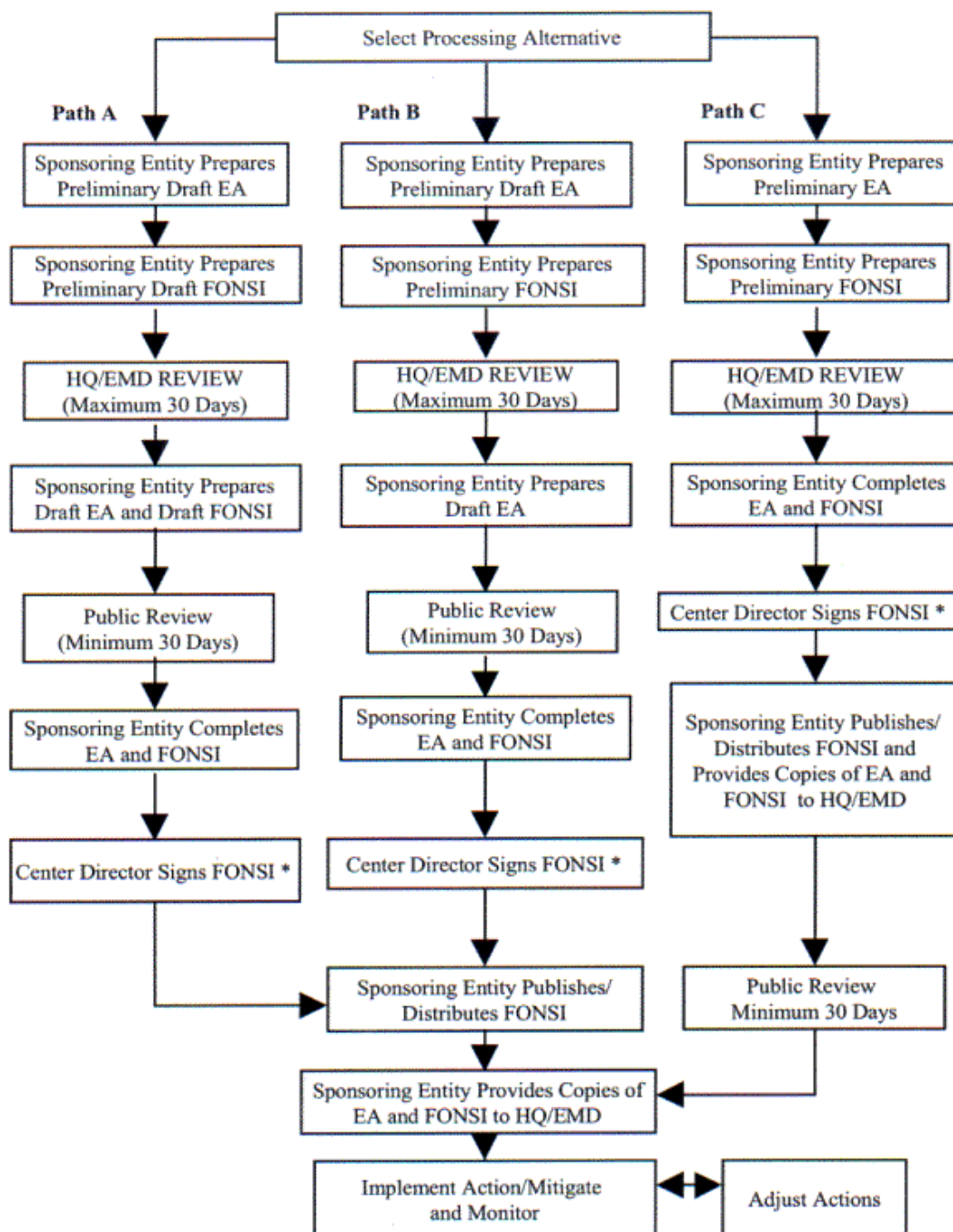
- (1) Write in plain language; a level the decisionmakers and the public can understand. Language should be non-judgmental and objective.
  - (2) Use 12 point text font with the largest reasonable font size for tables and graphics.
  - (3) Use easy-to-follow graphics and tables to summarize data. Show correlation. Do not confuse the reader.
  - (4) Provide graphs that use the same axes and scales whenever possible.
  - (5) Use maps and drawings that show all features needed to understand the environmental issues. Avoid extraneous information. Use directional arrows and scale indicators.
  - (6) Provide all measurements in metric units with British system equivalents in parentheses except when (a) there is a regulatory standard that is only expressed in one system or (b) the numbers are in a table or figure where using both systems would create too much clutter or confusion. (A list of common metric and British System equivalents can be found in Appendix A of the NPR.)
  - (7) Determine early in the analytic process how numerical data will be reported (e.g., how many significant digits will be used and how numbers will be rounded). Be sure all technical writers are using the determined convention.
  - (8) List all tables and figures in the Table of Contents.
  - (9) Provide an abbreviation and acronyms section if warranted. Provide a glossary of technical terms when specialized meanings are used.
  - (10) Remember that an EA is a predecisional document. The EA should not contain the ultimate decision or a determination that individual or cumulative impacts are or are not significant.
  - (11) Consider using appendices, if applicable. Appendices can contain more technical information than the main body of the text.
  - (12) Avoid the use of terminology such as significant, not significant, or insignificant when applied to environmental impacts. These determinations are reserved for the FONSI or a decision to prepare an EIS.
- b. In addition to the editorial guidance provided above and in chapter 8, Appendix I of this NPR contains sample environmental evaluation checklists presently used within NASA.

## 5.4 Nonexceptional Action EA's (Local)

a. Most EA's address actions that are confined entirely within a Center or Component Facility or are local in scope. For EA's of this type, the preparation process will be almost entirely internal to the Sponsoring Entity in consultation with the Environmental Management Office (EMO). As noted in Figure 5-3, there are three options for completing a Nonexceptional action EA (the Figure assumes the EA will lead to a FONSI). Each step and the differences in the three paths are described below.

b. Figure 5-3 notes the responsible parties within NASA, and where applicable, the length of time anticipated for review cycles. The differences in the three paths lie largely in when and what version of the EA and/or FONSI (i.e., preliminary, Draft, or Final) will be made available to the public. While the Sponsoring Entity is responsible for preparation of all EA's, the EMO (if not the same as the Sponsoring Entity) will determine the path used to complete the NEPA process. NASA Headquarters/Environmental Management Division (HQ/EMD) (and other NASA organizations, as appropriate) will be provided the opportunity to review the EA and FONSI before release to the public.

**Figure 5-3. Non-Exceptional Environmental Assessment Process  
(Assumes EA Will Lead to FONSI)**



\* See Section 5.4.3 for actions involving the Jet Propulsion Laboratory.

c. The great preponderance of spacecraft and payloads associated with space flight projects have little or no potential for wide-scale environmental impacts. For such missions, virtually all of the potential wide-scale environmental impacts are associated with the launch vehicle and are localized to the area surrounding the launch site. Consequently, an EA addressing such a mission should be treated as Nonexceptional.

#### 5.4.1 Preparatory Steps

a. When preparing to develop a Nonexceptional action EA, a number of planning and scoping activities are initiated by the Sponsoring Entity as outlined in sections 3.7.4 and 3.7.5. The local EMO must be consulted during these activities.

b. Depending upon the nature of the action being proposed, the Sponsoring Entity/EMO may wish to consult with HQ/EMD regarding the advisability and need to have other NASA organizations involved in the internal reviews before public release. HQ/EMD should also be informed if there is the potential for substantial environmental controversy. Depending upon the action and issues to be addressed, other organizations may have specific expertise or experience that would be valuable to EA preparation, or other organizations may be affected by the outcome of the NEPA process. For example, the Public Affairs Office at a Center can bring their in-depth knowledge of local issues and affairs to the EA preparation process, providing valuable assistance in dealing with local agencies and organizations. Participation by other NASA organizations should be evaluated early in the process, and appropriate arrangements should be made to ensure that the process flows smoothly.

c. After formulating the proposal, the local EMO will assist with the environmental evaluation of the proposal to determine if an EA or some other level of NEPA review would be more appropriate, define the purpose and need for the action, and frame the language describing the proposed action. This effort would also include an alternatives analysis (see section 3.7.5) to determine reasonable alternatives (including No-Action) to be evaluated along with the proposed action. Be careful to avoid segmentation of the action (see section 3.8). Determine other environmental review requirements that should be integrated into the EA and if there is a need for a cooperating agency(s) (see section 3.6). A list of agencies, organizations, and individuals potentially affected by or interested in the action that should be consulted, should be developed. Key environmental issues to be addressed are identified and the needed analyses determined.

d. The level of public involvement in the EA preparation process also needs to be determined, and if deemed necessary, a plan developed. The Public Affairs Office at the Center can often provide valuable assistance in structuring the public involvement process. CEQ regulations note that in preparing EA's, an agency should involve "... environmental agencies, applicants, and the public, to the extent practicable. ..." In addition, both CEQ regulations (40 CFR §1508.9) and NASA NEPA regulations require a listing of "... agencies and persons consulted" to be included in every EA. Formal early direct public involvement such as found in the EIS scoping process is typically not required for an EA. During the early stages of EA preparation, consultation with agencies, organizations, and individuals normally suffices in lieu of broader advertised public participation.

#### 5.4.2 Preparing the EA

5.4.2.1 The Sponsoring Entity is responsible for preparing all Nonexceptional action EA's (Figure 5-3). All internal reviews during preparation will normally be conducted by the Sponsoring Entity and the local EMO (and cooperating agency(s) if applicable). The process first focuses on preparing the EA. Only after a substantial portion of the data collection and analyses has been completed and reviewed in an overall context is it possible to make a tentative evaluation of whether issuing a FONSI or preparing an EIS would be the most appropriate course of action. Consequently, it is normally not appropriate to begin preparing a FONSI until the EA preparation process preceding submission to HQ is substantially complete.

5.4.2.2 HQ/EMD (and other NASA organizations, as appropriate) will be provided the opportunity to review the EA (and FONSI, if appropriate). This review will usually occur just before the version to be released to the public is completed. Five copies of the EA and FONSI are to be provided to HQ/EMD for this review. HQ/EMD will normally provide guidance, suggestions, or comments during the 30-day review period.

5.4.2.3 If no extension is requested and agreed upon and no comments are received from HQ/EMD by the end of the 30-day review period, none will be made (i.e., concurrence is presumed), and the Sponsoring Entity/EMO should proceed with completing the appropriate documents and preparing for publication and the public comment period.

5.4.2.4 CEQ regulations (40 CFR §1501.4(e)(2)) require agencies to make a FONSI available for public review for a period of 30 days before taking action if (a) the action is or is closely similar to one that normally requires an EIS or (b) the action is without precedent. However, all NASA EA's and/or FONSI's should be made available for a 30-day comment period at the point indicated in the path chosen (see Figure 5-3) except in extraordinary circumstances with the agreement of HQ/EMD. At the outset of the public review and comment period, copies of the EA will be placed in local public libraries or similar publicly accessible locations.

#### 5.4.3 Preparing the Decision Document

5.4.3.1 The EA process leads to preparing one of two very distinct decision documents:

- a. If the EA supports the conclusion that no significant impacts to the quality of the human environment will occur with implementation of the proposed action, a FONSI should be prepared, or
- b. If the EA supports the conclusion that significant impacts will occur, are likely to occur, or it is still unclear, then an

EIS is required, and an NOI is prepared (see chapter 6). The following discussion deals only with preparing a FONSI. NOI's, addressed in chapter 6, formally initiate the EIS process.

Figure 5-4. Format and Content of a Finding of No Significant Impact

# **NATIONAL AERONAUTICS AND SPACE ADMINISTRATION NOTICE (Document number as appropriate to Sponsoring Center or HQ)**

## **National Environmental Policy Act; name of project, activity, or mission.**

**AGENCY:** NASA and name of Strategic Enterprise, Center, or Program Office Sponsoring the Proposed Action. (For a FONSI appearing in the Federal Register, only National Aeronautics and Space Administration should be specified.)

**ACTION:** Finding of no significant impact

**SUMMARY:** State that based upon the analyses and evaluations in the EA, it is concluded that an EIS is not required. Briefly describe the proposal that NASA intends to implement.

**DATE:** Date FONSI is to be published and deadline for comments.

**ADDRESS:** Mailing address of Sponsoring Entity and point of contact for comments. Give locations where the EA can be reviewed or obtained.

**FOR FURTHER INFORMATION CONTACT:** Specific NASA manager responsible for the action or the local EMO. State telephone and facsimile numbers (optional).

## **SUPPLEMENTAL INFORMATION:**

Summarize the key elements of the analyses that support the FONSI. Include specific mitigation measures required to ensure no significant impact. Briefly describe the nature and level of environmental impacts and alternatives considered.



## Signature Block and Title of responsible official

**See Figure J-1 in Appendix J for an example of a NASA FONSI.**

### 5.4.3.2 Format and Content of a FONSI

a. The general format and content requirements of a NASA FONSI are illustrated in Figure 5-4; Figure J-1 illustrates an actual FONSI published in the Federal Register. The FONSI may summarize and incorporate the EA by reference, or if the EA is concise, incorporate the entire EA as Supplementary Information. The FONSI, ideally, should be brief but complete enough to enable an outside party to follow and understand the analyses and evaluations upon which it is based. (Whether or not the EA is summarized in the FONSI, it must still be available upon request to interested parties.)

b. A FONSI is a public decision document and must be made available to the public.

c. Mitigation measures incorporated into the action and required to support the FONSI shall be addressed in the FONSI. These measures become NASA commitments and shall be implemented in a timely manner.

### 5.4.3.3 Approvals, Publication, and Distribution

a. A FONSI must be published before taking action.

b. Draft FONSI's should not be signed.

c. FONSI's for Nonexceptional actions are signed by the Center Director, the Associate Administrator for HQ Operations (in the event of an HQ-sponsored action), or when designated, the Head of the Component Facility.

d. For Nonexceptional actions where the Jet Propulsion Laboratory has the delegated lead role for planning and implementation, FONSI's are signed by the Associate Administrator for Space Science. The NASA Office of the General Counsel must concur on the FONSI for a Nonexceptional action where (a) JPL would have the delegated lead role for planning and implementation, and (b) a major part of the action would occur outside of the property historically managed by JPL (e.g., space missions).

e. The FONSI or Draft FONSI (depending upon the path chosen) must be published at least one time for public review in a widely distributed local/regional newspaper by the Sponsoring Entity/EMO. If published only once, it is recommended that the most heavily read day of the week be chosen for publication and that publication occur in the legal notices, with notification of publication occurring elsewhere in a widely read section of the newspaper, such as the community notices section. Parallel with publication, the FONSI and supporting EA should be mailed by the Sponsoring Entity/local EMO directly, to all agencies, organizations, and individuals consulted during EA preparation (the consultation list) and other parties who have expressed an interest in the proposed action and its environmental impacts. Distribution to other interested parties is encouraged and should be considered by the Sponsoring Entity and local EMO. The EA (Draft or Final depending upon the path chosen) must be made available to the public upon request. The 30-day public availability period begins with the first notice published in the local/regional newspaper.

f. All comments received on the EA or FONSI must be reviewed and evaluated for relevance and for potential need to revise the EA and FONSI. A written response to each comment must be prepared for the administrative record. If comments raise issues impacting the decision that a FONSI is warranted, they must be fully evaluated to determine the need to either revise the EA and/or FONSI or to publish a NOI (setting in motion EIS preparation). For issues raised that are not relevant to environmental concerns, the administrative record need only make that statement. If comments suggest unforeseen environmental impacts that would be associated with the proposed action, then additional mitigation measures should be assessed as appropriate. If successful mitigation can be applied to avoid or reduce impact(s) to a non-significant level, then the EA and FONSI can be revised appropriately to reflect the mitigation measures. Communication with the commentor(s) raising issues may be appropriate. If mitigation cannot resolve the unforeseen significant impact(s), then an EIS is required and a NOI must be published. If the FONSI is revised, the FONSI must be republished and the action can then proceed.

g. The FONSI or revised FONSI must also be distributed by the Sponsoring Entity/EMO directly to all agencies and individuals consulted, other interested parties as appropriate, and to all parties that provided comments during the 30-day review period.

h. The following discussion assumes that the EA presents no information that individually or cumulatively indicates significant impacts to the quality of the human environment. A FONSI could then be supported. If during the NEPA process for a specific proposal, the Sponsoring Entity/EMO concludes that a FONSI cannot be supported by the EA, an EIS process should be initiated as soon as practicable (see chapter 6 for details on this process).

(1) As illustrated by Path A in Figure 5-3, a preliminary Draft EA and preliminary Draft FONSI (a best working effort) are prepared and five copies provided to HQ/EMD for 30-day review. After receiving HQ/EMD comments, if any, the Sponsoring Entity prepares the Draft EA and Draft FONSI. This Draft EA and unsigned Draft FONSI are made available to the public for a minimum 30-day review period. Based on the comments received during the public review period, the Sponsoring Entity then completes the EA and FONSI. The Associate Administrator for HQ Operations (in the event of a HQ-sponsored action), the Center Director, or when designated, the Head of Component Facility signs the FONSI and the public is notified of the decision by way of a local newspaper notice. In the event of a JPL Nonexceptional EA, the Associate Administrator for Space Science would sign the FONSI.

(2) Public review of the Draft FONSI and EA in Path A may result in comments that cause NASA to make substantive or material changes in the text of the FONSI before issuing the revised FONSI. In such a case, the Sponsoring Entity should republish the revised FONSI in an local newspaper of general circulation. When the public review results in a FONSI that is not substantively or materially different from the Draft FONSI, the Sponsoring Entity may either: a) publish the completed FONSI in a local newspaper of general circulation, or b) publish a notice in a local newspaper of general circulation stating that the FONSI is the same or essentially the same as the Draft FONSI and indicate how an interested party can obtain a copy of the completed /signed FONSI.

(3) Path B is very similar to Path A. The preliminary Draft EA and preliminary FONSI are prepared by the Sponsoring Entity, and five copies are provided to HQ/EMD for a 30-day review. After receiving HQ/EMD comments, if any, the Draft EA is completed by the Sponsoring Entity. The Sponsoring Entity makes the Draft EA available to the public for review. After receiving comments on the Draft EA, the Sponsoring Entity revises the EA as necessary and prepares the FONSI. The Associate Administrator for HQ Operations (in the event of a HQ-sponsored action), the Center Director, or when designated, the Head of the Component Facility signs the FONSI and the FONSI is made public through local advertising. In the event of a JPL Nonexceptional EA, the Associate Administrator for Space Science would sign the FONSI.

(4) Path C is somewhat more streamlined. Five copies of the preliminary EA and preliminary FONSI are provided to HQ/EMD for a 30-day review. After receiving HQ/EMD comments, if any, the Sponsoring Entity completes the EA and FONSI. The Associate Administrator for HQ Operations (in the event of a HQ-Sponsored action), the Center Director, or when designated, the Head of the Component Facility signs the FONSI, and both EA and signed FONSI are made available for the 30-day public review period. In the event of a JPL Nonexceptional EA, the Associate Administrator for Space Science would sign the FONSI. Path C is the only path where the public is reviewing both the completed EA and signed FONSI. Public comments are received and integrated as appropriate, and a revised FONSI, if necessary, is locally advertised.

i. The EMO, in consultation with the Sponsoring Entity, has the discretion to choose the path it deems most prudent for the Center and the proposed action. It is not necessary that the same path be chosen for every EA process.

j. Regardless of the path taken, after the FONSI is signed, the Sponsoring Entity/EMO needs to provide five copies of the completed EA and FONSI to HQ/EMD.

## 5.5 Exceptional Action EA's

5.5.1 Occasionally an action addressed by an EA may be exceptional. Exceptional actions are defined below and in CEQ regulations at 40 CFR §1501.4(e)(2)(i) and (ii). Exceptional actions include, but are not limited to, the following:

- a. An action that is closely similar to one that normally requires an EIS, but it is unclear that an EIS is required,
- b. An action requiring an EA that is national in scope (i.e., multicentered with environmental impacts at two or more NASA Centers, Component Facilities, or geographic locations, for example, the Earth Observing System program) or may be the subject of national environmental controversy,
- c. An action requiring an EA that is without precedent (e.g., a new type or class of action not previously undertaken),

and

d. Mitigative FONSI's (i.e., EA's in which mitigation measures are incorporated to avoid substantial environmental impacts or to reduce those impacts, individually and cumulatively, to a non-significant level). Without the mitigation measures, the EA would be unable to support a mitigative FONSI.

5.5.2 For an action at a single site that is physically removed from the NASA Center or Component Facility, consultation is required with HQ/EMD to determine if an exceptional action EA is required.

#### 5.5.3 Mitigative EA's

CEQ guidance provided in the Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations (Appendix G, Questions 39 and 40) addresses mitigative EA's. This guidance notes that it is acceptable to rely on mitigation measures to support a FONSI, but ". . . only if they are imposed by statute or regulation, or submitted by an applicant or agency as part of the original proposal." CEQ notes further that ". . . where the proposal itself so integrates mitigation from the beginning that it is impossible to define the proposal without including the mitigation, the agency may then rely on the mitigation measures . . ." to support a FONSI. CEQ recommends that mitigative EA's and associated FONSI's be made available for a 30-day public review.

5.5.4 HQ/EMD is directly involved in the formal concurrence of exceptional action EA's before public review.

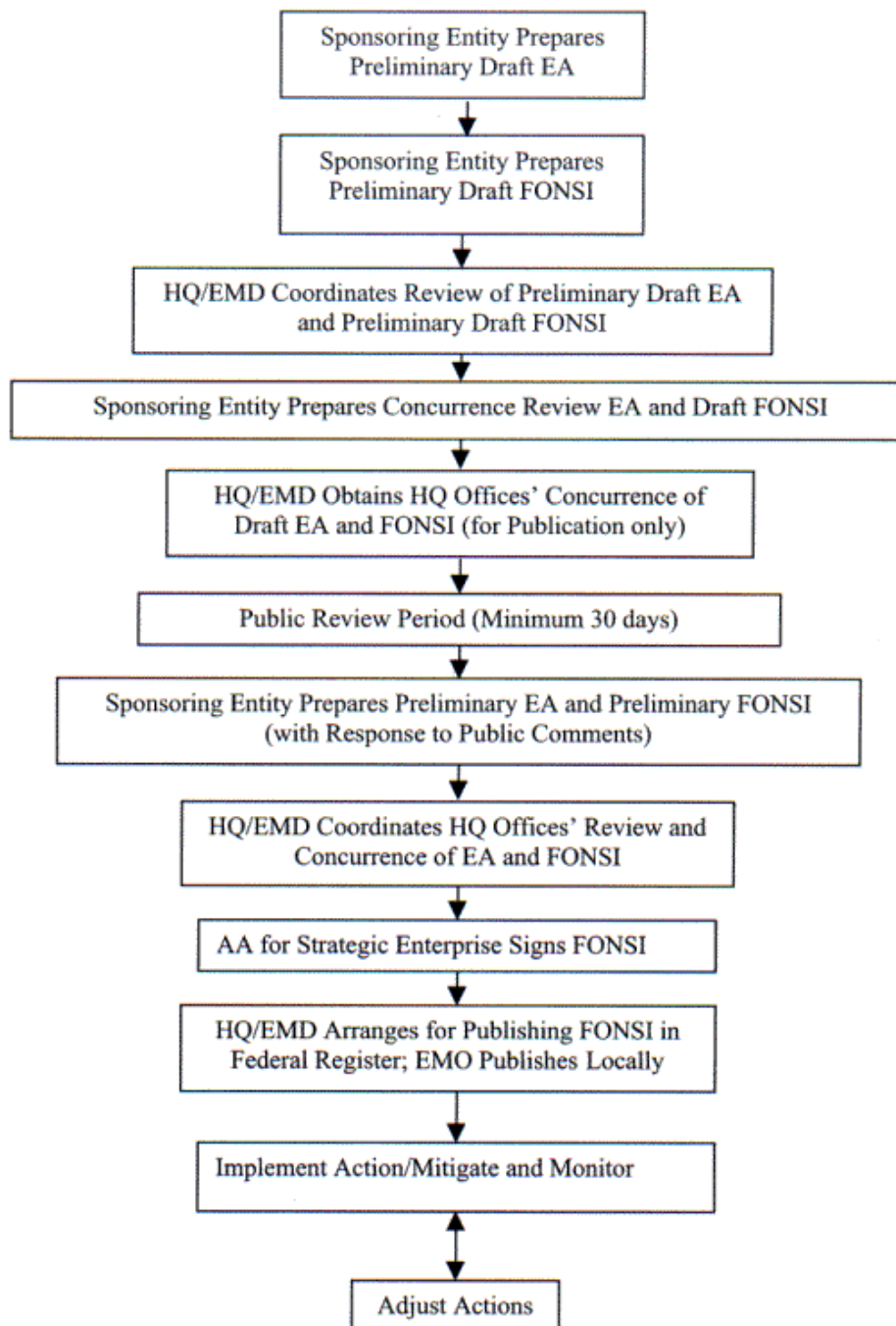
#### 5.5.5 Preparatory Steps

5.5.5.1 Figure 5-5 illustrates the process for an exceptional action EA. The preparation process for an exceptional action EA contains no alternative paths. The process is more lengthy than that for local or Nonexceptional EA's, requiring HQ-level concurrence review before public release of the EA/FONSI. The Sponsoring Entity/EMO must notify and obtain the concurrence of HQ/EMD concerning the decision on whether or not to prepare an exceptional action EA. This consultation will determine early in the process, the level of participation of HQ/EMD and other organizations (e.g., participation in concurrence reviews and publication of FONSI's). In planning the EA, the considerations and evaluations that should be factored into the process are similar to those discussed in sections 3.7.4, 3.7.7, and 5.4.

5.5.5.2 Of particular importance is considering the need for public participation. The Sponsoring Entity/local EMO, in consultation with HQ/EMD, will determine the need for broader public participation when preparing an exceptional action EA. For example, measures to be taken can include advertising the preparation of the EA; public meetings; requesting comments on the proposed EA content; and discussing the issues to be addressed with other agencies, organizations, and the public before preparing the EA (similar to scoping for an EIS, see section 6.4.4). During the early planning processing, the Sponsoring Entity/EMO should develop a list of agencies, organizations, and individuals potentially interested in the action. This list will serve as a mailing list (along with the list of agencies, organizations, and individuals directly consulted in the EA preparation process) for direct distribution of the EA and FONSI during the public review stage.



**Figure 5-5. Exceptional Action Environmental Assessment Process  
(Assumes EA will lead to a FONSI)**



5.5.5.3 In addition to public participation, it is especially important that the organizations that will be involved in the concurrence review be identified early in the process. This determination should be made in consultation with HQ/EMD. After they have been identified, the organizations involved should be notified regarding the action, their role in concurrence, and the time frame when the EA and FONSI are expected to be submitted for concurrence review.

#### 5.5.6 Preparing the EA and FONSI

5.5.6.1 As with Nonexceptional EA's, the Sponsoring Entity/EMO is responsible for preparing the EA and the FONSI (or NOI, as appropriate) (see Figure 5-4). Preparation includes data collection and analyses, internal reviews, and all activities associated with producing the document.

5.5.6.2 The process first focuses on preparing the EA. Only after a substantial portion of the data collection and analyses has been completed and reviewed in an overall context is it possible to make a tentative evaluation of whether issuing a FONSI or preparing an EIS would be the more appropriate course of action. The following discussion

assumes that the EA presents no information that individually or cumulatively indicates significant impacts to the quality of the human environment. A FONSI would then be supported. If during the NEPA process for a specific proposal, the Sponsoring Entity/EMO conclude that a FONSI cannot be supported by the EA, an EIS process should be initiated as soon as practicable (see chapter 6 for details on this process). Normally, it is not appropriate to begin preparing a FONSI until the EA preparation process preceding submission to HQ is substantially complete.

5.5.6.3 When the Sponsoring Entity/EMO is satisfied that the EA and FONSI (if supported) are at a level where they could potentially be made available to the public, they normally submit five copies of the proposed preliminary Draft documents to HQ/EMD for a 30-day preconcurrence review. HQ/EMD may involve other NASA organizations, as appropriate, in this preconcurrence review. The Office of the General Counsel will also participate. With completion of this review, the Sponsoring Entity will receive the resulting written comments. All comments and recommendations (other than minor editorial ones) provided by HQ offices reviewing exceptional action EA's and associated FONSI's must be addressed by the Sponsoring Entity. Resolution may be accomplished by (a) amending the EA or FONSI to satisfy the HQ concerns and incorporating the recommendations, or (b) mutually agreeing with the HQ commenting office on an alternative approach to address the concern.

5.5.6.4 The Sponsoring Entity/EMO, upon resolution of comments, then revises as appropriate and resubmits both the Draft EA and Draft FONSI to HQ/EMD for concurrence review (see Figure 5-5). Sufficient copies should be provided to ensure one copy for each reviewing organization identified earlier in the planning process or a quantity agreed upon with HQ/EMD. A transmittal memorandum should also be provided that is addressed to each concurrence reviewer, noting the closing date of the concurrence review period and name and phone number/location of the HQ/EMD point of contact. It is recommended that the transmittal memorandum also serve as a concurrence sign-off sheet to be signed by the reviewing organization.

5.5.6.5 Upon completing the concurrence review, HQ/EMD will collect all comments and provide them to the Sponsoring Entity/EMO for disposition and response. Responses to all comments should be developed and reviewed internally, and the comments of each commenting organization must be resolved. The EA and/or FONSI must be revised, as appropriate, by the Sponsoring Entity/EMO and becomes the Draft EA and Draft FONSI ready for publication (see Figure 5-5).

5.5.6.6 The Draft EA and Draft (unsigned) FONSI are then made available to the public for 30 days (see Figure 5-5). HQ/EMD will arrange for publication of the FONSI in the Federal Register, while the Sponsoring Entity/EMO will publish the document in widely read local newspaper(s) as agreed upon with HQ/EMD. The Sponsoring Entity/EMO will distribute the Draft EA and Draft FONSI directly to the list of agencies and individuals consulted and to the list of interested parties developed during the planning process. Copies will also be provided expeditiously to others requesting copies during the review period. Copies of both documents will also be provided to HQ/EMD and to reading rooms at all NASA Centers, where they will be made available to the public during the review period.

5.5.6.7 Upon completion of the 30-day public review period, all comments received will be collected, evaluated, and responded to in writing for the administrative record by the Sponsoring Entity/EMO. (Comments that are out of scope and have no bearing on environmental issues need only be acknowledged.) The Sponsoring Entity/EMO will revise the EA and/or FONSI accordingly and produce the preliminary EA and preliminary FONSI (if still appropriate).

5.5.6.8 The preliminary EA and preliminary FONSI are then transmitted to HQ/EMD, along with the comments and responses from the administrative record (see Figure 5-5). HQ/EMD will coordinate review of the documents by the appropriate HQ offices. Then HQ/EMD will consolidate and transmit the comments to the Sponsoring Entity for resolution as noted earlier at the preliminary Draft documents stage. With resolution of the HQ Offices' comments, HQ/EMD will provide written concurrence to the Sponsoring Entity for placement in the project files.

5.5.6.9 The Sponsoring Entity/EMO will then complete the EA and the FONSI for signature by the Associate Administrator for the sponsoring Strategic Enterprise, with concurrence of the Associate Administrator for HQ Operations (in the event of a HQ-s , ponsored action), Center Director or Head of the Component Facility, or designee, as appropriate.

5.5.6.10 After the FONSI is signed, five copies of the EA and FONSI should be forwarded to HQ/EMD. HQ/EMD will then transmit the signed FONSI to the appropriate HQ office to arrange for publication in the Federal Register. In parallel, the Sponsoring Entity/EMO will arrange for publishing the FONSI in the same newspaper(s) that published the Draft FONSI and distribute the FONSI directly to the list of agencies and individuals consulted, the list of interested parties, and all commentors.

5.5.6.11 The chosen action can then proceed. All mitigation measures agreed to in the EA and signed FONSI shall be implemented in a timely manner.

## 5.6 Summary of Roles and Responsibilities for EA's

Table 5-1 summarizes the typical roles and responsibilities for the EA process (i.e., documenting the environmental evaluation checklist through completion of the FONSI).

## 5.7 Mitigation and Monitoring

5.7.1 The EA process does not end with the decision to take action. Mitigation measures committed to in the EA and FONSI shall be implemented in a timely manner, and the action shall be monitored as appropriate to detect changes in mitigation measures that may be needed, detect other changes, such as significant new information that may require reevaluation of components of the action or even further NEPA documentation, and ensure that mitigation commitments have been carried out. In addition--

- a. Mitigation and monitoring are the responsibility of the Sponsoring Entity.
- b. HQ/EMD may request periodic monitoring reports and should be notified promptly in the event additional mitigation must be implemented or significant new information relevant to environmental concerns becomes available.
- c. If mitigation measures committed to cannot or will not be implemented, the HQ/EMD shall be notified promptly. HQ/EMD will consult with the Sponsoring Entity and other NASA organizations, as appropriate, to review the situation and determine the need for a follow-up plan.

5.7.2 Monitoring serves several functions:

- a. Determines the success of mitigation measures,
- b. Ensures adherence to mitigation measures committed to in the EA and FONSI,
- c. Determines if environmental effects of the action differ from those described in the EA, and
- d. Determines if new information is available about environmental issues associated with the action.

5.7.3 Based on monitoring results, additional mitigation measures or additional NEPA analysis may be needed.

Table 5-1. Typical Roles and Responsibilities for the Environmental Assessment Process<sup>1</sup>

Function	Sponsoring Entity	Local EMO	HQ/EMD	Center Director	AAMS <sup>2</sup>	Other AA <sup>3</sup>	Strategic Enterprise AA
				<b>Environmental Evaluation/Checklist</b>			
Prepare	x	x					
Review/Concur	x	x					
				<b>EA (Draft/Completed)</b>			

Prepare	x	x					
Review	x	x	x			x <sup>4,5</sup>	
Concur	x	x	x <sup>4</sup>	x	x <sup>4</sup>	x <sup>4,5</sup>	x <sup>4,5</sup>
Publish	x	x	x <sup>4</sup>				
				<b>FONSI (Draft/Signed)</b>			
Prepare	x	x					
Review		x	x			x <sup>4,5</sup>	
Concur	x	x	x <sup>4</sup>	x <sup>4</sup>	x <sup>4</sup>	x <sup>4,5</sup>	
Signature				x <sup>6</sup>			x <sup>4,5</sup>
Publish		x			x <sup>4</sup>		

<sup>1</sup> More than one x in a row indicates a collaborative effort between specified parties.

<sup>2</sup> AAMS = Associate Administrator for Management Systems.

<sup>3</sup> Other Associate Administrators (e.g., Office of Safety and Mission Assurance, Office of the General Counsel).

<sup>4</sup> Exceptional action EA only.

<sup>5</sup> See section 5.4.3 for special procedures covering Nonexceptional EA's involving JPL.

<sup>6</sup> Nonexceptional action EA only.

# CHAPTER 6. Environmental Impact Statements

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## 6.1 Environmental Impact Statements

6.1.1 An Environmental Impact Statement (EIS) is the most detailed and rigorous level of NEPA review provided for in the NEPA process (see Figure 3-3). An EIS is a disclosure document and a planning and decisionmaking tool. According to Council on Environmental Quality (CEQ) regulations 40 CFR §1502.1:

- a. An EIS is an action-forcing device to ensure that the policies and goals of NEPA are integrated into agency programs and actions.
- b. The purpose of an EIS is to "provide full and fair discussion of significant environmental impacts, and shall inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment."
- c. An EIS should: (a) "focus on significant environmental issues and reasonable alternatives . . . (b) be concise, clear, and to the point, and (c) be supported by evidence that the agency has made the necessary environmental analyses."

6.1.2 NASA typically prepares four general types of EIS's: payload, institutional, programmatic, and legislative. Payload EIS's are mission-specific, and can be typified by the Galileo, Ulysses, and Cassini EIS's. An institutional EIS addresses major site-specific activities, major real property acquisitions, modifications, and new construction involving one or more NASA Centers or other locations. Programmatic EIS's address broad NASA actions or programs such as the Space Shuttle and the Sounding Rocket program, and are addressed in more detail in section 7.6. Legislative EIS's are not common, but they are required when NASA is involved in preparing major legislation. Legislative EIS's are addressed in more detail in section 7.4.

## 6.2 NASA Actions Requiring an EIS

6.2.1 As stated in CEQ regulations (40 CFR §1502.3), an EIS is required in every recommendation or report on "Proposals for legislation (see section 7.4), and other major Federal actions significantly affecting the quality of the human environment" (see section 3.7.3).

6.2.2 In accordance with CEQ regulations, NASA has designated certain actions that are expected to have a significant effect on the human environment as normally requiring an EIS. These actions include the development and operation of --

- a. New launch vehicles,
- b. Space vehicles likely to release substantial amounts of foreign materials into Earth's atmosphere or into space, and
- c. Nuclear systems, including nuclear reactors and thermal devices used for propulsion and/or power generation.

6.2.3 Disposal or acquisition of real property may require an EIS. In addition, a space mission involving the return to Earth of materials gathered from extraterrestrial sources may require an EIS.

6.2.4 Excluded from the presumption that an EIS is needed are nuclear devices having limited numbers of millicurie or less quantities of radioactive materials used as instrument detectors, and small radioisotope heaters used for local thermal control, provided they are properly contained and shielded. The International Atomic Energy Agency (IAEA) publication Safety Standard Series No. ST-1, Regulations for the Safe Transport of Radioactive Material, 1996 Edition, among other references, has been used in the past as guidance in making the decision as to whether an EIS should be prepared.

6.2.5 For the above actions, an environmental assessment (EA) is not required before starting an EIS. However, an EA may be prepared if the Sponsoring Entity feels that it would assist with planning and preparing the EIS.

## 6.3 Required Format and Content of an EIS

### 6.3.1 Format

NASA regulations specify that an EIS is to be prepared in the manner specified in CEQ regulations at 40 CFR Part 1502. CEQ regulations 40 CFR §1502.10 outline the standard format of an EIS as illustrated in Figure 6-1. The overall format of an EIS is similar to that required for an EA with some additions. The content of each chapter of an EIS is discussed below.

### 6.3.2 Required Content

6.3.2.1 CEQ regulations (40 CFR §1502.2) provide important rules for preparing an EIS:

- a. An EIS shall be analytic rather than encyclopedic (focus is on the primarily significant issues and alternatives),
- b. "Impacts shall be discussed in proportion to their significance" (the discussion of nonsignificant issues should be brief, and only to the extent necessary to show why more study is not warranted), and
- c. "EIS's shall be kept concise, and shall be no longer than absolutely necessary" (i.e., length will vary with potential environmental problems and with project size).

Figure 6-1. Required Format of an Environmental Impact Statement

Cover Sheet-(see Figure 6-2)

EXECUTIVE SUMMARY

TABLE OF CONTENTS

LIST OF ABBREVIATIONS AND ACRONYMS

BRITISH V. METRIC MEASUREMENT CONVERSION TABLES

#### 1 PURPOSE AND NEED FOR THE ACTION

#### 2 DESCRIPTION AND COMPARISON OF ALTERNATIVES

- Description of proposed action and each reasonable alternative, including No-Action
- Brief description of alternatives not considered in detail; explain why
- Summary of environmental impacts of proposed action and reasonable alternatives, including No-Action

#### 3 DESCRIPTION OF THE AFFECTED ENVIRONMENT

- Appropriate-level descriptions of the physical, natural, and socioeconomic aspects of the environment that will be impacted, including, but not limited to, air quality, historical/cultural resources, threatened or endangered species and habitats, wetlands, floodplains, and other sensitive/protected resources

#### 4 ENVIRONMENTAL CONSEQUENCES

- Impact analyses for the proposed action and reasonable alternatives, including No-Action
- Mandatory subsections
- Relationship Between Short-term Use of the Human Environment and the Maintenance and Enhancement of Long-term Productivity
- Irreversible and Irretrievable Commitments of Resources

#### 5 MITIGATION AND MONITORING (optional; can be incorporated into chapter 4 if appropriate)

#### 6 REFERENCES



## 7 LIST OF PREPARERS

## 8 AGENCIES, ORGANIZATIONS, AND INDIVIDUALS CONSULTED

- Consulting Agencies
- Distribution List

## 9 INDEX

Appendices (Final EIS must have a Response to Comments chapter; it can be included as an appendix or in a separate volume.)

d. CEQ regulations (40 CFR §1502.7) state that normally an EIS should not exceed 150 pages, with EIS's for proposals of unusual scope and/or complexity normally not exceeding 300 pages.

e. An EIS shall state how the alternatives considered and the decisions based on the EIS will achieve the purposes of NEPA and other environmental statutes and policies.

f. The range of alternatives discussed in an EIS must encompass the alternatives from which the agency's ultimate decisionmaker can select (i.e., the decisionmaker cannot select an alternative outside the range discussed in the EIS). Even if an alternative is not within NASA's jurisdiction to implement, but it is reasonable, it should be evaluated.

g. Agencies cannot commit resources that would--

(1) have an adverse environmental impact, or

(2) prejudice the selection of alternatives before making a final decision (i.e., do not take actions or commit resources that would require adopting a particular alternative until the decision is made). CEQ regulations (40 CFR §1506.1) provide for limited exceptions to this rule as discussed in section 7.8 Interim Actions.

h. An EIS serves as the means of assessing the environmental impact of proposed actions, not to justify decisions already made.

i. CEQ regulations (40 CFR 1502.25(b)) state that a Draft EIS must "list all Federal permits, licenses, and other entitlements which must be obtained before implementing the proposal."

6.3.2.2 An EIS should be written in plain language, avoiding technical jargon as much as possible. Conclusory statements without factual backup analyses (e.g., the action will only minimally affect waterfowl) should be avoided, presenting quantitative data to the extent possible.

6.3.2.3 With respect to each major EIS chapter outlined in section 6.3.2, CEQ provides additional guidance in 40 CFR Part 1502. Refer also to the discussions in section 5.3.2 of parallel or similar EA chapters and chapter 8 of this NPR for additional general information pertaining to EIS content.

### 6.3.2.4 Cover Sheet

CEQ regulations (40 CFR §1502.11) outline the specific format and content of an EIS cover sheet. Figure 6-2 provides the format of NASA's required cover sheet.

### 6.3.2.5 Executive Summary

CEQ regulations (40 CFR §1502.12) describe the Executive Summary as an accurate summary of the entire document; it does not focus solely on one chapter or aspect. It is important that the summary stress the major findings presented in the EIS, the major areas of environmental controversy or concerns (including issues raised by agencies and the public), and the issues to be resolved (including the choice among alternatives). CEQ recommends that the Executive Summary not exceed 15 pages in length; NASA recommends it be less than 10 pages.

Figure 6-2. Required Cover Sheet for an Environmental Impact Statement



## **POPULAR NAME of PROPOSAL INCLUDES TYPE (e.g., DRAFT or FINAL )**

### **Lead Agency:**

NASA, State name of Sponsoring Entity; name(s) of cooperating agency(ies) if appropriate

### **Point of Contact for Information:**

Name, title, address, and phone number of NASA Point of Contact

### **Date:**

Date of Issuance (recommend using month and year)

### **Abstract:**

Succinct statement of proposed action; brief abstract of the EIS, stating proposed action, alternatives examined, and summary of key findings (the abstract may be printed on a separate page, if necessary).

#### 6.3.2.6 Chapter 1-Purpose and Need for the Action

As noted earlier in section 5.3.2 for EA's, this chapter is one of the most important chapters of a NEPA document. CEQ regulations (40 CFR §1502.13) stress that this chapter should briefly describe the action the agency needs to take and what the goal of the action is. It needs to be carefully crafted so that the range of alternatives is neither arbitrarily narrowed to what the agency wants to do nor so broadly defined that the range of alternatives is essentially infinite and can never be analyzed. In developing the purpose and need, care should be exercised to avoid subdividing the action into smaller components for separate NEPA treatment leading to segmentation as discussed in section 3.8, which would weaken the NEPA process and leave it open to challenge.

#### 6.3.2.7 Chapter 2-Description and Comparison of Alternatives

a. This is where the alternatives analysis discussed in section 3.7.5 is documented. Chapter 2 is often called the lynch pin chapter of an EIS. It clearly defines the alternatives, and highlights the differences in environmental impacts between the alternatives. According to 40 CFR §1502.14 of CEQ regulations, this EIS chapter has a dual purpose:

- (1) it contains a description of the proposed action and the range of reasonable alternatives (including the mandatory No-Action alternative) sufficient to permit an EIS reviewer to understand and to critically review the EIS and the bases underlying the major environmental issues addressed, and
- (2) it provides a comparative summary of the impacts (direct, indirect, and cumulative) of the proposed action and alternatives (including No-Action) that sharply defines the issues and provides the decisionmaker and the public a clear basis for choice among the alternatives.

b. CEQ regulations (40 CFR §1502.14) require this EIS chapter to include the following:

- (1) To the extent possible, comparisons should be made in quantitative terms. Rigorously examine and objectively evaluate all reasonable alternatives (reasonable means technically and economically feasible and available within the time frame of the action, see section 3.7.5).
- (2) Briefly discuss the reasons why certain alternatives were eliminated from detailed study.
- (3) Provide substantial treatment of each reasonable alternative to enable reviewers to compare their relative merits. A matrix of alternatives versus environmental category (e.g., air quality, water quality, and geology) can be valuable in presenting this comparison and is normally recommended.
- (4) "Include reasonable alternatives not within the jurisdiction of the lead agency" (i.e., if a reasonable alternative is

not within NASA's jurisdiction to implement, it still must be evaluated).

(5) "Include the No-Action alternative" (see sections 3.7.5 and 5.3.2).

(6) "Identify the agency's preferred alternative or alternatives, if one or more exists, in the Draft EIS; identify the preferred alternative in the Final EIS unless prohibited by another law."

(7) "Include appropriate mitigation measures not already included in the proposed action or alternatives."

#### 6.3.2.8 Chapter 3-Description of the Affected Environment

CEQ regulations (40 CFR §1502.15) describe this chapter as a succinct description of the existing environment to be affected by the alternatives being considered (including the proposed action and No-Action alternatives). The amount of detail provided should be proportional to the significance of the impacts. Less important aspects can be summarized or referred to other studies or NEPA documents. Typical elements of the environment to be addressed are provided in sample environmental evaluation checklists in Appendix I.

#### 6.3.2.9 Chapter 4-Environmental Consequences

a. As stated in (40 CFR §1502.16) of CEQ regulations, this chapter is the scientific and analytic chapter of the EIS, providing the basis for comparisons among alternatives (including the proposed action and the No-Action). It should address adverse and beneficial impacts of the alternatives and any adverse environmental effects that cannot be avoided if the proposal is implemented. Urban quality, historic and cultural resources, and design of the as-built environment should be addressed along with reuse and conservation potentials of the alternatives. As noted earlier in section 5.3.2, direct and indirect impacts as well as cumulative impacts and their significance need to be discussed.

b. Occasionally, information needed to evaluate a key environmental issue will not be available or has not yet evolved to a stage where it can be used. Instances such as these are subject to special treatment. See section 7.9 for a discussion of incomplete and unavailable information.

c. This chapter has two mandatory subsections:

(1) The Relationship Between Short-Term Use of the Human Environment and the Maintenance and Enhancement of Long-Term Productivity. The short-term use subsection should address possible conflicts with the objectives of Federal, State, and local land use plans and policies or private party plans for the affected area. If Native American Indian tribal lands are to be affected, the tribe's land use policies and plans must also be taken into account.

(2) Irreversible and Irrecoverable Commitments of Resources that would result if the proposal were implemented. The Irreversible and Irrecoverable Commitment of Resources subsection should address the use of nonrenewable energy resources, natural and depletable resources, and scarce materials and the conservation potential of the alternatives under evaluation, including associated mitigation measures.

d. Mitigation measures to reduce or avoid significant impacts, if not already an integral part of the alternatives (including the proposed action and No-Action), can also be addressed in this chapter or as a separate chapter of the EIS (chapter 5) if the measures are extensive, complex, or require extensive monitoring.

e. The last section of the consequences chapter shall include a brief discussion of permits, licenses and approvals required to be obtained before implementation of the action.

#### 6.3.2.10 Chapter 5-Mitigation and Monitoring

If mitigation measures play a major role in avoiding or reducing substantial environmental impacts and are important to the decision regarding which alternative to choose, they should be afforded separate treatment in this chapter, particularly if the mitigation measures are extensive or complex (see also section 3.7.6). Monitoring the action and implementing the mitigation measures should also be addressed. The monitoring discussion should also address how successful implementation of mitigation will be measured and how modifications will be made, if required.

#### 6.3.2.11 Chapter 6-References

a. Requirements for the list of references are addressed in section 5.3.2.7 and summarized here. All references cited in the EIS (except classified references and otherwise protected or proprietary materials; see section 7.3) must be listed.

b. Certain types of references (known as underlying documents) should be made publicly available or accessible.

c. CEQ requires that Federal agencies make the underlying documents and comments received on an EIS available to the public, "... pursuant to the provisions of the Freedom of Information Act (5 U.S.C. §552), without regard to the

exclusion of interagency memoranda where such memoranda transmit comments of Federal agencies on the environmental impact of the proposed action" (40 CFR §1506.6(f)). The CEQ regulations do not provide any guidance as to where the underlying documents and/or comments are to be made available, except to point out that the materials, "... shall be provided to the public without charge to the extent practicable, or at a fee which is not more than the actual costs of reproducing copies to be sent to other Federal agencies . . . ." (40 CFR §1506.6(f)).

d. Underlying documents are considered to include only those documents that have been prepared specifically in support of the EIS preparation and analyses. Other official NEPA documents that are incorporated in whole or in part into the EIS may also constitute an underlying document. This definition does not include documents published in open literature and than can be obtained from publishers or public repositories. Underlying documents prepared by NASA (or a cooperating agency) can sometimes be included in the EIS as appendices.

e. When incorporation of underlying documents in the EIS is not feasible or practical, and subject to copyright concerns, it is recommended that copies of the underlying documents be compiled into an EIS library, and made available to the public for inspection at a minimum of two locations: the NASA Center or Component Facility where the action is based and NASA Headquarters (HQ). Other locations can be used based upon the local or national scope and level of public interest and controversy.

f. These underlying documents can be held in the public reading room or with a designated responsible party. The public reading room staff must be notified of the name and phone number of the point of contact to simplify accessing the references when requested by the public. It is required that underlying documents be accessible during the NEPA process, and it is recommended that they be maintained until the action is implemented. Where a document is cited as a reference and is not otherwise readily available, NASA must have a copy in its possession (or in the possession of its NEPA contractor) or be sure that it is available at a public repository. Attention must be paid to copyrighted materials. NASA cannot make copies of copyrighted material, then recopy it for distribution without first obtaining waivers or permission from the publisher and/or authors. Also, the Sponsoring Entity should satisfy itself that the referenced document contains the most current and best available information. In addition, telephone or other oral communications are not valid references unless documented contemporaneously or shortly thereafter, and the written record is provided to the participants.

#### 6.3.2.12 Chapter 7-List of Preparers

CEQ regulations (40 CFR §1502.17) require that a list of preparers be included in the EIS. This list includes the name of all parties (including contact personnel) primarily responsible for preparing the EIS and for preparing significant background papers and particular analyses supporting the EIS. The list shall include the qualifications of each person (specifically expertise, experience, and professional disciplines). It is important to note that while EIS preparation may involve non-NASA personnel, such as third-party contractors, NASA, specifically the Sponsoring Entity retains authorship of and responsibility for the EIS.

#### 6.3.2.13 Chapter 8-Agencies, Organizations, and Individuals Consulted

a. This chapter documents the extent to which NASA has ensured participation by other agencies, organizations, and the public in the NEPA process. Agencies are required by CEQ regulations (40 CFR §1501.7) and NASA regulations to provide the public, other agencies, and organizations the opportunity to provide input regarding environmental issues and concerns during EIS preparation. The Sponsoring Entity must provide the opportunity for this participation (see sections 3.5 and 6.4.3).

b. All official contacts with other Federal, State, or local agencies must be documented, along with any substantive inputs or information resulting from these contacts. This documentation becomes part of the administrative record.

c. For the Draft EIS, this chapter should contain a summary of the EIS scoping process, noting the extent of public and other interested party participation, and major environmental issues and concerns raised. For the Final EIS, a similar summary should be substituted addressing public review of the Draft EIS (e.g., describe number of Draft EIS's distributed; numbers of commentors and comments received, and principal topics addressed).

d. For the Draft EIS, chapter 8 shall contain a broad list of Federal agencies, including those having jurisdiction by law over the action and those with special expertise. It should also contain state, regional, and local agencies with authority over or interest in the affected area; national and any local organizations that would be expected to have an interest in the action (e.g., environmental groups); and individuals who have expressed interest in the action. This list must include agencies, organizations, and individuals expressing interest or environmental concerns during the public scoping period. Do not list contacts made with other NASA entities or NASA contractors involved in the proposed action. It may be appropriate to list some people referred to in chapter 7, List of Preparers. All agencies, organizations, and individuals on such lists must be provided copies of the EIS when it is released to the public at both the Draft and

Final EIS stages. It is not required that the recipients of informational or complimentary copies (e.g., copies sent to Senators or Members of the House of Representatives) be listed in this chapter of the EIS.

e. For the Final EIS, this list will be further augmented with those agencies, organizations, and individuals that provided comments on the Draft EIS or otherwise expressed interest in the action during that period.

f. It is recommended that essentially two lists be maintained: (1) a list of names for publication within the NEPA document and/or for public release (as described above) and (2) a second list for use solely within the NEPA project that contains the full name, address, and telephone number of all agency and organization points of contact, and interested individuals. Only the list generated under (1) in this paragraph would become part of the administrative record (see section 3.7.7). The list produced under (2) in this paragraph should be used solely for internal coordination.

#### 6.3.2.14 Chapter 9-Index

An index is required by 40 CFR §1502.10(j) of CEQ regulations. The index should provide a quick reference source to all the major topics; environmental issues; descriptions of key components of the alternatives evaluated; major impacts of alternatives; environmental topics addressed (e.g., air, water quality, wastes, accidents); and analyses associated with other environmental review requirements.

#### 6.3.2.15 Appendices

a. As noted in section 5.3.2 and in 40 CFR §1502.18 of CEQ regulations, appendices incorporated into an EIS should consist of underlying documents (i.e., materials prepared specifically for the EIS, not materials incorporated by reference from other documents). Furthermore, appendices should normally contain material that substantiates the EIS analyses and should be analytic and relevant to the decision that will be made. Appendices are usually bound into the EIS, or if voluminous, bound into another volume(s). Appendices can also be available upon request (i.e., not bound in the EIS). Appendices should be circulated with the EIS if they are likely to be of interest to more than a few reviewers, or they can be made available upon request (if they are not bound in the EIS).

b. The appendix entitled Response to Comments on the Draft EIS can be included as an appendix, or, if voluminous, in a separate volume, but must be circulated with the Final EIS. Comments (and associated responses) can be grouped by source (e.g., Federal, State, and local agencies, and individuals). While all comments received must be acknowledged, only comments on pertinent environmental issues need to be responded to. See Figure 8-2 for additional guidance on the Response to Comments appendix.

#### 6.3.3 Editorial Suggestions

a. The following recommendations reflect NASA policy and will improve the NEPA process. The preparers of an EIS should--

(1) Write using plain language; a level the decisionmakers and the public can understand. Language should be nonjudgmental and objective. Jargon should be avoided to the maximum extent practicable, and where needed, should be defined.

(2) Use 12-point-type text using the most reasonable font size for graphics and tables.

(3) Use easy-to-follow graphics and tables to summarize data. Show correlation. Do not confuse the reader.

(4) Provide graphs that use the same axes and scales whenever possible.

(5) Provide maps and drawings that show all features needed to understand the issues. Avoid extraneous information. Use directional arrows and scale indicators.

(6) Provide all measurements in metric units with British system equivalents in parentheses except when (a) there is a regulatory standard that is only expressed in one system or (b) the numbers are in a table or figure where using both systems would create too much clutter or confusion. (A list of common metric and British system equivalents can be found in Appendix A of the NPG.)

(7) Determine early in the analytic process how numerical data will be reported (e.g., how many significant digits will be used, and how numbers will be rounded). Be sure all technical writers are using the determined convention.

(8) List all tables and figures in the Table of Contents.

(9) Provide an abbreviation and acronym section if warranted. Provide a glossary of technical terms when specialized meanings are used.

(10) Remember an EIS is a predecisional document. Consequently, the EIS should not inadvertently use language or suggest in any other way that a decision has been made.

## 6.4 EIS Process and Responsibilities

6.4.1 A flow chart of the EIS preparation process is provided in Figure 6-3.

### 6.4.2 Preparatory Steps

6.4.2.1 During the initial environmental evaluation of the proposal, the Sponsoring Entity and local EMO will formulate the purpose and need for the action and define the proposed action to accomplish NASA's goals. HQ/EMD must be consulted during this evaluation and will be an integral part of the entire EIS process.

6.4.2.2 After the purpose and need have been carefully defined, three essential planning and scoping activities are carried out by the Sponsoring Entity:

- a. Conducting alternatives analysis in which the range of reasonable alternatives is determined (see section 3.7.5),
- b. Determining other environmental review requirements applicable to the proposal (e.g., National Historic Preservation Act and Endangered Species Act) (see section 3.6), and
- c. Identifying key environmental issues associated with the proposal and analyses needed.

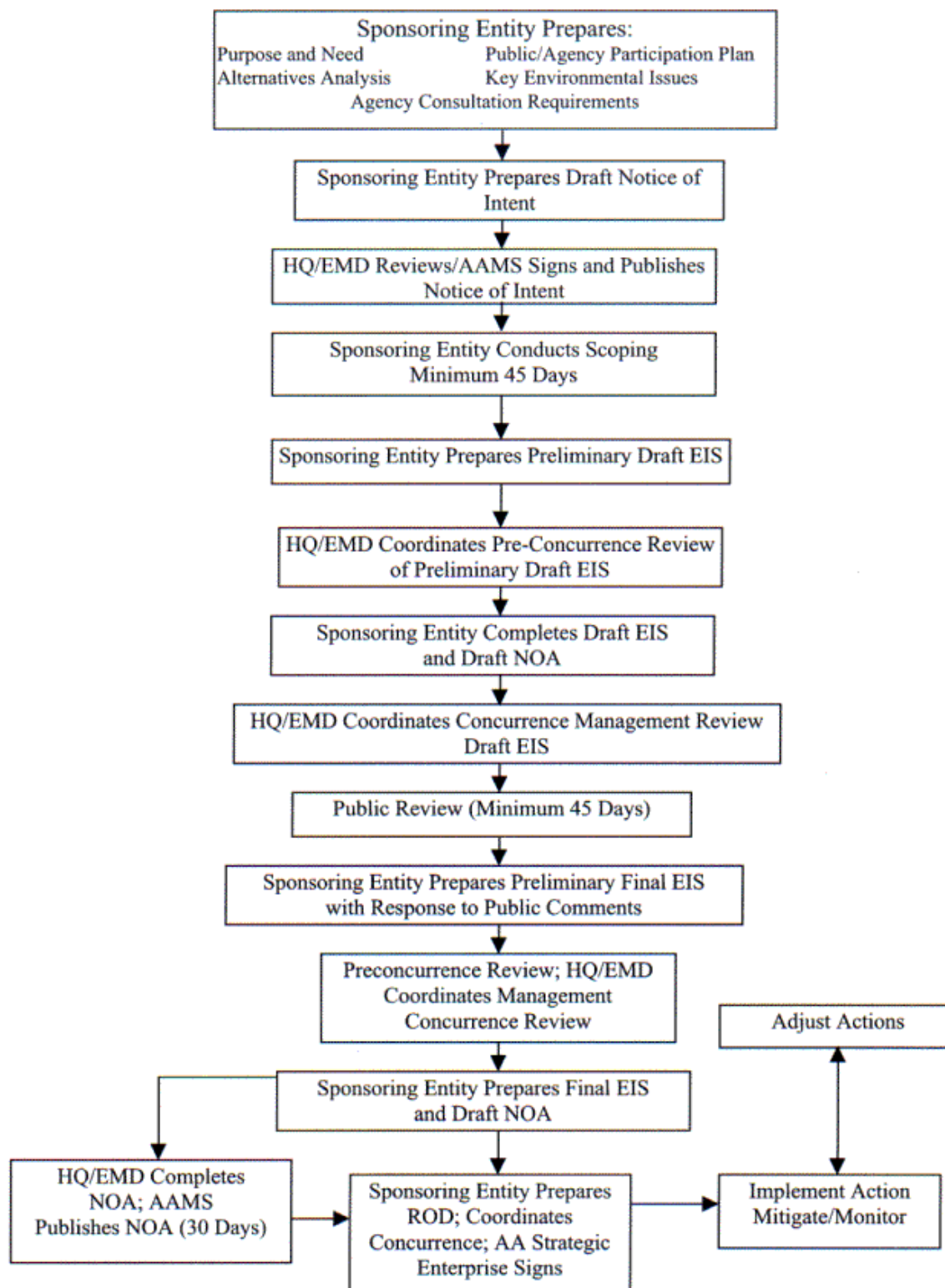
6.4.2.3 The Sponsoring Entity is responsible for determining the need for a cooperating agency(s) to participate in preparing the EIS (see section 7.16.4) and developing a preliminary list of potentially interested agencies, organizations, and individuals (including affected Indian tribes) for use in mailing of the Notice of Intent (NOI). Public involvement measures to be implemented and public meetings, newsletters, press releases, and other types of outreach activities also need to be determined.

6.4.2.4 Depending upon the action and issues to be addressed, other organizations may have specific expertise or experience that would be valuable to EIS preparation, or other organizations may be affected by the outcome of the NEPA process. For example, the Public Affairs Office at a Center can bring their in-depth knowledge of local issues and affairs to the EIS preparation process, providing valuable assistance in dealing with local agencies and organizations. Participation by other NASA organizations should be evaluated early in the process and appropriate arrangements made to ensure that the process flows smoothly.

6.4.2.5 In evaluating the environmental issues to be addressed, the range of environmental categories to be considered includes, but is not limited to the following:

- a. Air quality and meteorology,
- b. Water resources,



**Figure 6-3. Environmental Impact Statement Preparation Process**

- c. Waste generation, treatment, transportation, and disposal,
- d. Geology, soils, and topography,
- e. Noise, sonic boom, and vibration,
- f. Toxic substances and hazardous materials,
- g. Biological resources and ecology,

- h. Radioactive materials and nonionizing radiation,
- i. Endangered and threatened species,
- j. Historical, cultural, and archaeological resources,
- k. Wetlands, floodplains, and prime or unique farmland,
- l. Land use,
- m. Socioeconomic factors (if related to impacts to natural or physical factors),
- n. Infrastructure,
- o. Accidents involving hazardous, toxic, or radioactive materials,
- p. Environmental justice,
- q. Pollution prevention,
- r. Public health and safety, and
- s. Stratospheric ozone depletion and global climatic change.

6.4.2.6 The HQ/EMD is available for consultation throughout these initial steps.

#### 6.4.3 Preparing the NOI

6.4.3.1 The NOI is the first public document published in the EIS preparation process. The format and content are illustrated in Figure 6-4, while real-life examples are provided in Appendix J (see Figures J-2 and J-3). CEQ regulations (40 CFR §1501.7) outline the requirements an agency must fulfill in conducting the public scoping process. The NOI initiates compliance with these requirements. As noted in Figure 6-4, the NOI:

Figure 6-4. Format for the Notice of Intent

NOTICE (99-_____)1,2	
National Environmental Policy Act: Title of the proposed action, project, mission, or program	
AGENCY:	National Aeronautics and Space Administration
ACTION:	Notice of intent to prepare an environmental impact statement and conduct scoping <sup>3</sup>
SUMMARY:	The National Aeronautics and Space Administration, in accordance with the National Environmental Policy Act of 1969 (NEPA), as amended (42 U.S.C. 4321 et seq.), the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500-1508), and NASA's policy and procedures (14 CFR Part 1216; Subpart 1216.3), intends to prepare an EIS for _____.
DATES:	Interested parties are invited to submit written comments to NASA by _____, 20XX, to ensure full consideration during the scoping process.
ADDRESSES:	Comments should be submitted to: (name of responsible official at-address. Facsimile number and electronic mail address may also be given).
FOR FURTHER INFORMATION CONTACT:	Name and telephone number of responsible official



## SUPPLEMENTARY INFORMATION: Discuss:

1. Why action is needed (i.e., the need and purpose)
2. Description of the proposed action
3. Alternatives under consideration
4. List of significant environmental issues to be analyzed in depth in the Draft EIS
5. Description of the scoping process
6. Public meetings: location (City, County and State), dates, and times

<sup>1</sup> Begins with the appropriate calendar year.

<sup>2</sup> AAMS provides code designation.

<sup>3</sup> Supplemental EIS's do not require scoping or the "DATES" block.

See Figures J-2 and J-3 in Appendix J for examples of NASA NOI's.

a. Invites participation of affected Federal, State, and local agencies; affected Indian tribes; and other interested individuals and groups, including those that might not be in agreement on environmental grounds. (Classified actions are an exception addressed in section 7.3.)

b. Tentatively identifies the scope and significant issues to be analyzed in depth in the EIS, identifying and eliminating from consideration issues that are not significant or have been covered in previous NEPA documents.

c. Indicates any other EA's or EIS's that are or will be prepared that are related to but not part of the scope of the present EIS.

d. Indicates the relationship between timing of EIS preparation and the agency's tentative planning and decisionmaking schedule.

e. Includes details of the agency's plan for soliciting public input (e.g., public scoping meetings, and written input).

6.4.3.2 Publishing the NOI signals the initial opportunity for the public to become involved in shaping the EIS. It invites interested agencies, organizations, and individuals to become involved by submitting comments and environmental concerns and issues to NASA for consideration in the EIS. The completed and approved NOI is published in (a) the Federal Register (this starts the clock for the official public scoping period); and (b) local newspapers of general circulation, as appropriate.

a. Responsibility for preparation of the draft NOI rests with the Sponsoring Entity in consultation with the local EMO. It is then transmitted to the HQ/EMD. A preliminary list of potentially interested agencies, organizations, and individuals must accompany the draft NOI.

b. The HQ/EMD will review and revise the draft NOI, as appropriate. The Sponsoring Entity will concur with agreed-upon revisions. The NOI will then be transmitted for concurrence by the Office of General Counsel and the Associate Administrator of the relevant Strategic Enterprise. The Associate Administrator for Management Systems (AAMS) will sign and publish the NOI in the Federal Register. The Sponsoring Entity will mail copies of the NOI to the list of potentially interested agencies, organizations, and individuals (see section 6.3.2). The Sponsoring Entity will be responsible for publishing notices in local newspapers of general circulation, as appropriate.

#### 6.4.4 Public Scoping

6.4.4.1 The Sponsoring Entity is responsible for public scoping of the EIS. Public scoping is a required element of the EIS preparation process. Scoping is an early and open process for determining the array of issues to be addressed in the EIS and for identifying significant issues. The NOI specifically requests comments on the proposal, reasonable alternatives, and significant environmental issues from any and all interested parties.

6.4.4.2 Failure to provide adequate opportunity for agencies and interested parties to participate in EIS scoping undermines the whole NEPA process. It also hinders full and fair consideration of the environmental impacts of the proposed action and reasonable alternatives. The following items provide additional guidance for including public scoping in the EIS process.

a. The scoping period should encompass at least 45 calendar days from the date the NOI is published in the Federal

Register or local newspaper, whichever is later (for complex or controversial actions, 60 days may be more appropriate).

b. If public scoping meetings will be held, the times, dates, and locations of the meetings must normally appear in the NOI; public meetings should not occur until 15 days after the NOI publication date. If the dates are not known at the time of NOI publication, an information update must be published indicating the public meeting dates and locations as soon as established.

c. The number of public scoping meetings to be held shall be determined by the Sponsoring Entity and local EMO. Factors that influence this decision include the complexity of the proposed action, level of public visibility or controversy, and the size of the area where impacts would be experienced.

d. All responses received from interested parties during the scoping period should be entered into a chronological log by date of receipt.

e. Original letters, facsimiles, electronic mail, and phone contact notes must be copied for working use, with the originals maintained in a separate file for the duration of the proposed project as part of the administrative record (see section 3.7.7).

f. All responses received must be evaluated against the issues and alternatives outlined in the NOI and preparatory analyses and deliberations (see section 6.3.2). The plan for the EIS should be modified or revised when the Sponsoring Entity determines that significant environmental concerns have been raised. All evaluations of comments received and their disposition (e.g., not pertinent; currently considered in the plan; new issue, needs to be incorporated) must be documented and entered into the administrative record. If a large number of comments are received or the pertinent comments are broad-ranging, a database or spreadsheet can be helpful in tracking how and where each pertinent comment will be addressed.

g. Interested parties may raise environmental issues and concerns after the designated scoping period closes; issues raised within 45 days before publication of the Draft EIS will be addressed as a response to comments in the Final EIS. All comments received must be evaluated for relevancy. If no new issues are raised that need to be addressed in the Draft EIS, document this result for the administrative record. If pertinent new information is provided that has a bearing on the significance of impacts or range of reasonable alternatives and it would cause a substantial change in the analyses or conclusions, it normally should be incorporated in the Draft EIS. This new information may require major redirection of the EIS and schedule. In cases where such redirection and substantial delay may be appropriate, the HQ/EMD must be consulted immediately to assist in balancing the new information with the tardiness of the commentor.

h. All respondents providing input or other expressions of interest during the scoping period must be added to the list of agencies, organizations, and individuals consulted.

6.4.4.3 The Sponsoring Entity is responsible for conducting the scoping period and evaluating and dispositioning of all comments. It is strongly recommended that a specific person, with a designated backup, be assigned responsibility for handling, copying, and archiving all comments received and overseeing the process of evaluating and tracking comments.

#### 6.4.5 Preparing the Draft EIS

6.4.5.1 The Sponsoring Entity is responsible for preparing the preliminary Draft EIS. The preliminary Draft EIS normally proceeds through one or more internal reviews within the Sponsoring Entity/local EMO before it is ready for NASA concurrence review. It is recommended that resolution of internal review comments be conducted at a face-to-face meeting of the primary reviewers. This resolution method helps focus on comments that are pertinent to the technical and NEPA adequacy of the document and ultimately saves time in preparing the document because needed revisions can be agreed to at the meeting.

6.4.5.2 NASA regulations address the formal NASA reviews required before publication of an EIS. As the last step in the internal review process before submitting the proposed Draft EIS for formal NASA concurrence review, HQ/EMD will coordinate a preconcurrence review of the preliminary draft, which includes the Office of the General Counsel. This will help ensure that NEPA, legal, or outstanding substantive environmental issues are resolved before the EIS is submitted for formal NASA management concurrence review. The Sponsoring Entity should supply HQ/EMD with 10 copies of the EIS (or quantities as agreed upon) for review. All comments and recommendations (other than minor editorial ones) provided by HQ offices reviewing EIS's must be addressed by the Sponsoring Entity. Resolution of comments may be accomplished by (a) amending the EIS to satisfy the HQ concerns and incorporating the recommendations or (b) mutually agreeing with the HQ commentor on an alternative approach to addressing the

concern. Revisions are made by the Sponsoring Entity/local EMO and the document made ready for management concurrence review.

- a. Before submitting the preliminary Draft EIS for NASA concurrence review, the Sponsoring Entity/EMO develops the list of senior management reviewers in consultation with the HQ/EMD and the Office of the General Counsel.
- b. The Sponsoring Entity issues the covering memorandum that transmits the preliminary Draft EIS and provides copies to HQ/EMD for the NASA senior management concurrence reviewers. If the EIS is complex or controversial, a presentation by the Sponsoring Entity to the Program Management Council before concurrence review is recommended. (HQ/EMD is available for consultation, as needed.)
- c. HQ/EMD will coordinate the management concurrence review. Concurrence comments from other HQ offices must be sent to HQ/EMD, which transmits the comments to the Sponsoring Entity.
- d. Allow 2 to 4 weeks for concurrence review depending upon the complexity of the EIS. During this period, the Sponsoring Entity prepares a preliminary Notice of Availability (NOA) for the Draft EIS. The preliminary NOA is submitted to HQ/EMD, refines and finalizes the document to prepare for release of the Draft EIS to the public.
- e. After completing of NASA management concurrence review, the Sponsoring Entity will provide a direct response to all reviewers making comments. When all agreed upon revisions are made and verified as acceptable by the relevant reviewer, the document can be made final with a last quick review by the HQ/EMD and the Office of the General Counsel. After completing this quick review, the document goes to the printer as the Draft EIS.
- f. Five copies of the Draft EIS and a copy of the mailing list (i.e., the updated list of agencies, organizations, and individuals consulted from the scoping period) are provided to the AAMS. The AAMS, in consultation with HQ/EMD and with the concurrence of the Office of the General Counsel, signs NASA's NOA and ensures publication in the Federal Register. Appendix J provides two examples of NOA format and content (see Figures J-4 and J-5). The NOA designates a point of contact for receipt of all public review comments and establishes a date and time of day (or approximate date depending upon publication of the U.S. Environmental Protection Agency (EPA) NOA for close of the comment period. Normally, the closing time for receiving comments is the close of the business day.
- g. A cover letter, prepared by the Sponsoring Entity, should accompany each EIS soliciting comments and stating the duration and closing date of the public review period if known. If the closing date of the public review period is not known, it should be linked to the approximate date of publication of the EPA's NOA. Certified Mail/Return Receipt may be advisable if the EIS is contested, with some organizations, and/or individuals strongly expressing opposition or when mailing to remote areas.
- h. After the direct mailing is completed, HQ/EMD, on behalf of the AAMS, will deliver five copies of the Draft EIS to the EPA, Office of Federal Activities, and certify that copies have been mailed to the names on the mailing list. The EPA will prepare its own NOA for publication in the Federal Register. EPA NOA's are published on Friday only, and will appear in the Federal Register on the Friday of the week following the week in which NASA submits the Draft EIS to EPA. It is recommended that a notice be placed in a local newspaper of general circulation for EIS's dealing with proposed actions that may have significant localized environmental impacts.
- i. The official opening date for the public review period is the date of publication of the EPA NOA or NASA's NOA Federal Register notices, whichever is later. The closing date of the review period is directly linked to the last of these Federal Register notices. NASA may, at its discretion, grant an interested party additional time for comment and review upon receipt of a valid written request for an extension. Simply not filing comments on time is not considered a valid basis for an extension. Ordinarily, the extension should not be more than 15 days, unless good cause is shown.
- j. The minimum public review period is 45 calendar days from the official opening date of the public review period.
- k. The EPA, Office of Federal Activities, will review and assign a rating to the EIS. EPA's rating will be forwarded in writing to NASA and published in the Federal Register. This rating is extremely important. EPA's rating system is described in section 7.12.
- l. As noted in section 6.3.2.11 all underlying documents and studies cited in the EIS must be compiled into a library and made available for public review at the NASA Center or Component Facility nearest the proposed action and at NASA HQ. A copy of the EIS must be provided to each NASA Center and Component Facility and made available for public review. Normally, copies of the EIS should also be placed in local libraries when the proposal may have significant localized environmental impacts.

#### 6.4.6 Preparing the Final EIS

6.4.6.1 Preparation of the Final EIS is addressed in CEQ regulations (40 CFR §1502.9(b) and §1503.4) and in NASA regulations.

6.4.6.2 If a preferred alternative was not identified in the Draft EIS, it must be identified in the Final EIS.

6.4.6.3 After completing the public review of the Draft EIS, all comments received should be copied, archived, handled, and evaluated in the same manner as described for scoping comments (see section 6.4.6). The principal difference is that every comment received must be responded to in writing in an appendix (or separate volume) to be included and published in the Final EIS. For those comments that necessitate a revision or addition to the Final EIS text, the response should note the location(s) where the text change occurs. Various techniques can be used in responding to comments, with one example provided in Appendix J (see Figure J-6). Where large numbers of similar comments are made, these comments can be grouped together and responded to once. Also, the comments may indicate sufficient flaws in the Draft EIS to require preparing a supplemental Draft EIS.

6.4.6.4 Potential responses to relevant comments received can include the following:

- a. Modifying the alternatives, including the proposed action,
- b. Developing and evaluating alternatives not previously given serious consideration,
- c. Supplementing, improving, or modifying the analyses,
- d. Correcting facts, and
- e. Explaining why some or all comments do not warrant further response; citing the sources, authorities, or reasons that support this position; and if appropriate, indicating the circumstances that would cause the agency to reconsider the comment or prepare further response.

6.4.6.5 All comments received must be addressed in the appendix whether or not the comment resulted in a revision or modification in the text of the Final EIS. NASA needs to respond to comments on the EIS relevant to environmental and associated socioeconomic concerns and issues. Where a comment focuses on issues that are not environmental (environmental issues normally relate to the natural, or physical environment or interrelated socioeconomic factors) or not relevant to the proposed action, the response needs only to note that fact.

6.4.6.6 After completing the Response to Comments appendix (see section 6.3.2.15) text revisions, and suitable internal review by the Sponsoring Entity, the preliminary Final EIS will proceed through the set of reviews and NASA concurrence review identical to those described for the Draft EIS in section 6.4.5. The Sponsoring Entity submits a revised mailing list of agencies, organizations, and individuals (including all parties or persons who commented on the Draft EIS) along with five copies of the Final EIS to the AAMS. A preliminary NASA NOA is prepared by the Sponsoring Entity/local EMO and submitted to HQ/EMD. The draft NOA will be reviewed in consultation with the Office of the General Counsel and other NASA entities, as appropriate. HQ/EMD will prepare the NOA for signature, obtain the signature of the AAMS, and submit it through AAMS for publication in the Federal Register. (The Sponsoring Entity/local EMO may also publish the NOA in local or regional newspapers of general circulation, as appropriate.) The Sponsoring Entity mails copies directly to all parties on the updated mailing list; delivery is made to EPA by HQ/EMD, and EPA publishes its NOA. The NOA for the Final EIS and the transmittal letter should each note that a Record of Decision (ROD) will not be rendered for at least 30 days from the EPA or NASA NOA date in the Federal Register (whichever is later) and should invite interested parties to submit a written request for a copy of the ROD to the NASA point of contact. Figures J-7 and J-8 in Appendix J are example NOA's for Final EIS's.

6.4.6.7 Copies of the Final EIS are also made available to the public at NASA Centers and, if appropriate, Component Facilities and local libraries. Copies of all underlying documents prepared specifically for the EIS (see section 6.3.2.11), as cited in the Final EIS (the EIS library), shall be made available to the public at NASA HQ, the affected Center, or Component Facility, and other NASA locations, as appropriate.

6.4.6.8 In certain instances, NASA may receive public comments on the Final EIS. Those comments received during the 30-day waiting period must be considered and reviewed, entered into the administrative record, and taken into account in reaching the record of decision. For more detail see Appendix K, Question Q16.

#### 6.4.7 Record of Decision

6.4.7.1 The ROD is the last step in the EIS process (see Figure 6-5). A ROD cannot be signed before 30 days have elapsed since publication of the NOA (NASA or EPA, whichever is later) for the Final EIS. As described in CEQ regulations (40 CFR §1505.2), the ROD is a public record that--

Figure 6-5. Outline of a Record of Decision

Record of Decision  
National Aeronautics and Space Administration

## Title of EIS

### A. Background

Summarize the purpose and need for action, describing what goal NASA needs to obtain and how the proposed action will do that.

### B. Introduction to the EIS

Briefly describe the process, with dates provided for the NOI and scoping period, summary of extent of public/agency participation (number of commentor), and major issues raised; date of NOA for the Draft EIS, length of comment period, number of commentors, and summary of types of major issues raised; date of NOA for the Final EIS, length of waiting period, and extent and nature of any comments received during the 30-day waiting period. Note other environmental review requirements addressed in the EIS.

### Alternatives Considered

1. Briefly describe alternatives considered in detail.
  - -Alternative A. . . .
  - - . . . .
  - -Alternative G
2. Briefly describe alternatives not considered in detail.
3. Briefly describe the No-Action alternative.

### Key Environmental Issues Evaluated

Briefly describe the major issues across the alternatives considered including the No-Action, and the key analytic results.

### Environmental Consequences

Briefly summarize the major consequences of each alternative evaluated in detail, including No-Action.

### C. Assessment of the Analysis

Describe the major findings drawn from the analysis of environmental consequences (e.g., effect on cultural resources, and jeopardy to endangered species); describe how incomplete and unavailable information was accommodated.

### Choice of Alternatives

State the alternative to be chosen and why. Identify the environmentally preferred alternative; describe why.



## **D. Additional Information**

Describe any other environmental review requirements addressed in the EIS (e.g., historic and endangered species consultations). Provide responses to comments, if any, received during the waiting period; or alternatively, these responses may be provided as an Appendix to the ROD or as a separate referenced document.

## **E. Mitigation**

Describe mitigation measures developed to address important environmental impacts and how they will reduce or avoid impacts. This is a commitment.

## **Decision**

Briefly state what the decision is and any key factors (e.g., technical, cost, schedule, or policy) that influenced the decision.

## **Signature**

**Printed Name/Title**

**Date**

- a. States what the decision is,
- b. Identifies all alternatives considered in reaching the decision,
- c. Specifies the alternative(s) considered to be environmentally preferable,
- d. May discuss preferences among alternatives based upon relevant factors, including, but not limited to, technical and economic considerations and the Agency's statutory mission,
- e. Identifies and discusses all factors, including factors of national policy, that were balanced by the agency in arriving at the decision, stating how they entered into the decision,
- f. States whether all practical means to avoid or minimize environmental harm from the alternative selected have been adopted and if not, why not, and
- g. Adopts and summarizes a monitoring and enforcement program where applicable for mitigation.

6.4.7.2 A ROD normally should not exceed 6 to 10 pages in length.

a. Within NASA, the ROD is--

- (1) Prepared by the Sponsoring Entity in consultation with the local EMO, HQ/EMD, Associate Administrator of the Sponsoring Enterprise, and the Office of the General Counsel,
- (2) Signed by the Associate Administrator for the sponsoring Strategic Enterprise or designee,
- (3) Kept on file by the Sponsoring Entity, and
- b. The ROD is available to the public upon request.

## **6.5 Summary of the Roles and Responsibilities for the EIS Process**

Table 6-1 provides a summary of the roles and responsibilities for the EIS process.

## **6.6 Mitigation and Monitoring**

6.6.1 With the signing of the ROD, the selected action can be implemented. The NEPA process does not end here, however. It continues with mitigation and monitoring of implementation actions. Mitigation and monitoring are the responsibility of the Sponsoring Entity and must be accomplished in a timely manner. HQ/EMD may request periodic monitoring reports and must be consulted in the event additional or different mitigation must be implemented or

significant new information becomes available. If a mitigation measure committed to cannot be accomplished, HQ/EMD will consult with the Sponsoring Entity/local EMO and other NASA organizations, as appropriate, to review the situation and determine the need for a written follow up plan.

Table 6-1. Typical Roles and Responsibilities for the EIS Process <sup>1</sup>

Function	Sponsoring Entity	Local EMO	HQ/EMD	Center Director	AAMS <sup>2</sup>	Other AA <sup>3</sup>	Strategic Enterprise AA
				<b>Environmental Evaluation/Checklist</b>			
Prepare	x	x					
Review/Concur	x	x					
				<b>NOI</b>			
Prepare	x	x	x				
Review	x	x	x				
Concur	x	x	x	x		x	x
Signature					x		
Publish		x			x		
				<b>EIS (Draft, Final)</b>			
Prepare	x	x					
Review/Concur	x	x	x	x	x	x	x
Publish	x	x					
				<b>NOA (Draft EIS, Final EIS)</b>			
Prepare	x	x	x				
Review/Concur	x	x	x	x		x	x
Signature					x		



Publish		X			X		
				<b>ROD</b>			
Prepare	X	X					
Review	X	X	X	X		X	X
Concur	X	X	X	X	X	X	
Signature							X

<sup>1</sup> More than one x in a row indicates a collaborative effort between specified parties.

<sup>2</sup> AAMS = Associate Administrator for Management Systems.

<sup>3</sup> Other Associate Administrators (e.g., Office of Mission and Safety Assurance, Office of the General Counsel).

6.6.2 Monitoring serves the following functions:

- Determines the success of mitigation measures,
- Ensures adherence to the mitigation measures committed to in the EIS and the ROD,
- Determines if the environmental effects of the action differ from those described in the EIS, or
- Identifies new information as it becomes available concerning significant environmental issues associated with the action.

6.6.3 In 6.6.2c or 6.6.2d above, additional mitigation measures or NEPA analysis may be needed.

# CHAPTER 7. Special Topics of Concern

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## 7.1 Introduction

a. A number of special topics have been reserved for this chapter either because they are not encountered often or because their importance deserves highlighting and special treatment. Among the topics not frequently encountered are emergency circumstances requiring action, classified actions and information, and legislative EIS's.

b. Topics that are special because of their importance and value in NEPA compliance are supplemental EIS's, programmatic NEPA documents (EA's and EIS's), tiering an EIS, circumstances under which interim actions are allowed while an EIS is being prepared, incomplete and unavailable information and its role in NEPA documents, modifications to FONSI's and records of decision (ROD's); disagreements between agencies on EIS analyses and conclusions; U.S. Environmental Protection Agency (EPA) rating of EIS's and their importance to NEPA document defensibility; cumulative impacts; facility closures; conflict of interest in NEPA document preparation; cooperative arrangements; electronic media; environmental remediation projects; and metrics. Each of these topics is addressed in the following sections.

## 7.2 Emergency Circumstances

7.2.1 Occasionally, a Federal agency may be faced with an emergency circumstance making it necessary to implement an action that would have a significant impact on the human environment without observing the required processes. Emergency circumstances are not frequently encountered, but when they occur they are not exempt from NEPA; rather, they are subject to special rules. In these instances, 40 CFR §1506.11 provides that the action agency "... should consult ..." with the Council on Environmental Quality (CEQ) with respect to making alternative arrangements. Such arrangements will be limited to "... actions necessary to control the immediate impacts of the emergency."

7.2.2 Should an emergency require NASA to institute rapid actions that would result in substantial environmental impact without the benefit of previous NEPA analyses, Headquarters/ Environmental Management Division (HQ/EMD) shall be notified immediately by the Sponsoring Entity responsible for the action (14 CFR §1216.318). HQ/EMD, in turn, will consult with the Associate Administrator for Management Systems (AAMS), Office of the General Counsel, Sponsoring Entity, local Environmental Management Office (EMO), and other NASA entities as required, before consulting with CEQ.

7.2.3 HQ/EMD, in coordination with AAMS and the Office of the General Counsel, will consult with CEQ regarding alternative arrangements for NEPA compliance. Only actions necessary to control the impacts of the emergency will be exempt from immediate NEPA requirements. All other actions are subject to NEPA review. Actions the Agency simply wants to accomplish quickly do not constitute an emergency circumstance; emergencies are usually viewed as catastrophic events beyond the Agency's control.

7.2.4 CEQ may require a NEPA analysis of the action after the fact, when the emergency circumstance is over. The agreements made with CEQ by HQ/EMD and the AAMS, in coordination with the Office of the General Counsel, are binding upon NASA and the Sponsoring Entity.

## 7.3 Classified, Privileged, or Other Protected Information

7.3.1 A proposed action or parts of a proposed action may be subject to a security classification established by an Executive Order or statute and must be kept secret because of national security or foreign policy considerations. CEQ regulations (40 CFR §1507.3(c)) and NASA regulations (14 CFR §1216.317) provide for instances such as these. Classified actions or portions of classified actions are not exempt from NEPA; rather, they are only treated differently. The portions of an EA or EIS containing classified materials and associated analyses can be safeguarded and restricted from public review by organizing them into a classified annex or appendix, with the unclassified portions made available to the public.

7.3.2 In addition, privileged or other protected information (not classified) can consist of written and electronic materials and communications from individuals, corporations, or other parties. Privileged or protected information is most often considered nondisclosable, and such non-disclosure may be indicated by certain markings (e.g., BUSINESS CONFIDENTIAL, COMPANY PROPRIETARY, FOR OFFICIAL USE ONLY). Such types of information provided to NASA can range from engineering drawings, to specification computer code, and business proposals. Until NASA determines whether or not the information merits privileged or protected status, it should be presumed that such markings are valid and protection should be provided. Once NASA determines that the information merits protected status, NASA should take all prudent measures to ensure that such nondisclosable information is not released in NEPA-related documents or otherwise unless legally required to do so.

7.3.3 There are also other types of protected information often encountered during the NEPA process. This information may include the mailing addresses, electronic mail addresses, and telephone numbers of individuals who are consulted or participate during the NEPA process. NASA should take prudent measures to ensure that such private information is not disclosed in its NEPA-related documents or otherwise unless legally required to do so.

7.3.4 Consult with HQ/EMD whenever classified, privileged, or protected information (other than the types specifically mentioned above) or materials are involved.

## 7.4 Legislative EIS's

7.4.1 CEQ regulations (40 CFR §1502.3 and §1508.17) require that proposals for legislation that would significantly affect the quality of the human environment be accompanied by a legislative EIS. If a Federal agency develops or provides significant support for a legislative proposal, it is responsible for preparing the EIS. Annual authorization and appropriation legislation do not require an EIS (40 CFR §1508.17). NASA does not often become involved in preparing proposals for legislation that would significantly affect the quality of the human environment. When such a case does arise, the NASA Office of Legislative Affairs is responsible for ensuring that an appropriate EIS accompanies a legislative proposal. The Office of Legislative Affairs will consult with HQ/EMD in planning and preparing a legislative EIS. HQ/EMD will consult with the Office of the General Counsel and other NASA organizations, as appropriate, in implementing this responsibility.

7.4.2 The rules governing preparing a legislative EIS are addressed in CEQ regulations (40 CFR §1506.8) and in NASA regulations (14 CFR §1216.315). A brief summary of these rules follows:

a. The legislative EIS should accompany the legislative proposal, but can be submitted up to 30 days later, and

b. The steps for a legislative EIS are the same as described in chapter 6 except--

(1) Scoping is not required.

(2) The Draft legislative EIS will be considered the completed statement under NEPA, unless a Congressional Committee with jurisdiction over the proposal requires a Draft and Final EIS; the proposal results from a study process required by statute (e.g., the Wild and Scenic Rivers Act) requiring a Draft and Final EIS; legislative approval is being sought for a Federal or federally assisted construction or other project at a specific geographic location(s), in which case a Draft and Final EIS is required; or the Agency decides to prepare a Draft and Final EIS.

(3) If a Draft and Final EIS are required, the Draft EIS will be circulated for public review just as any other EIS, with the comments and Agency responses forwarded to the congressional committee(s) with jurisdiction.

## 7.5 Supplemental EIS's

7.5.1 Occasionally, during or after preparation of an EIS, a supplemental Draft and Final EIS may be required if (a) the "agency makes a substantial change in the proposed action that is relevant to environmental concerns, or (b) there is significant new circumstances or information relevant to environmental concerns that bears on the proposed action or its impacts" (see 40 CFR §1502.9(c)). Examples of the types of NASA actions requiring a supplemental EIS (see chapter 6) include--

- a. A major change in the type of propulsion system or fuel during the development or operation of a new launch vehicle that results in a substantial change in air quality impacts,
- b. New modeling analyses or studies that indicate a substantial change in the predicted environmental impacts of a substance emitted to the upper atmosphere, or
- c. Monitoring during implementation of the action determines that mitigation of a potentially significant impact is not sufficient, and substantial impacts are occurring (14 CFR §1216.313(c)).

7.5.2 These and other similar types of new information or circumstances can cause either the Draft or Final EIS to no longer provide an accurate picture of the impacts of the proposed action, no longer represent the range of reasonable alternatives, or cause one of the alternatives not selected to become substantially more desirable. In essence, the Draft or Final EIS becomes outdated in some essential regard. In these instances, the agency may need to supplement the Draft EIS (if the Final EIS has not yet been released) or supplement the Final EIS (40 CFR §1502.9).

7.5.3 NASA may also choose to prepare a supplement at its own discretion if it feels that the purposes of NEPA will be furthered by doing so. When a supplemental EIS may be indicated, the Sponsoring Entity must inform and consult HQ/EMD.

7.5.4 Supplemental EIS's are prepared in the same manner as described in chapter 6, starting with a Notice of Intent (NOI) and ending with a ROD. However, there are two major differences: a public scoping period is not required in the supplement process, and the focus of the supplemental analyses is on the change in the proposed action, or the new information or circumstances (the balance of the EIS analyses that are unaffected can simply be summarized and incorporated into the supplemental EIS by reference).

7.5.5 All supplements must be issued both as Draft and Final Supplemental EIS's, similar to normal EIS's.

## 7.6 Programmatic NEPA Documents

7.6.1 CEQ regulations at 40 CFR §1502.4(b) refer to EIS's for broad actions. The term broad action describes actions that can include agency programs and broad sets of related or similar actions. In common use, EIS's addressing such broad actions are called programmatic EIS's. Broad actions can also be addressed by EA's. Programmatic NEPA documents are encouraged in appropriate circumstances.

7.6.2 Broad actions can often be grouped by geographic location; relevant similarities (e.g., common timing, impacts, alternatives, methods of implementation, subject matter, or affected media); and state of technological development (e.g., Federal and federally funded research and development and demonstration programs for new technologies).

7.6.3 Agencies have broad discretion in determining whether to prepare programmatic NEPA documentation. Consult with the local EMO and HQ/EMD if contemplating a programmatic NEPA document.

7.6.4 In deciding to prepare programmatic documentation, consider the following two criteria:

- a. The programmatic EIS is sufficiently forward looking to contribute to the decisionmakers basic planning of the program or connected/similar actions.
- b. The decisionmaker, by not preparing a programmatic EIS, would in effect segment the program and the scope of the environmental evaluation. In other words, by addressing each component or action individually, the decisionmaker runs the risk of missing significant environmental impacts from implementing the program or connected/similar actions.

7.6.5 Programmatic NEPA documents, by taking a broad view, in effect avoid segmenting environmental analyses of common concerns by analyzing them in the entire program or suite of related or similar actions (e.g., the combined impacts of rocket motor exhaust on air quality would be evaluated across the entire array of related missions). Programmatic NEPA documents can also be an effective tool for addressing cumulative environmental impacts. Such programmatic NEPA documents thus have a global or big picture focus on environmental concerns that cut across programs and/or are shared by related or similar actions or plans. The processes for preparing programmatic EA's and EIS's are the same as those discussed in chapters 5 and 6.

7.6.6 Programmatic documents are broad in scope, or big picture (i.e., address an entire program or a broad action). They may be followed by site- or mission-specific documents. The follow-on NEPA documents do not have to provide detailed analyses of the shared environmental concerns addressed in the programmatic documents. Those concerns and relevant analyses are treated by the programmatic document and are grandfathered to the extent that the analyses remain accurate. The site- or mission-specific documents, for those environmental concerns, reference the programmatic document and only summarize the programmatic analyses. The time, effort and resources for the documents can, thus, focus principally on the individual program subelement or specific action of concern.

7.6.7 Before deciding to prepare a programmatic EA or EIS, the Sponsoring Entity must consult with HQ/EMD.

## 7.7 Tiering

7.7.1 Tiering is a valuable technique when preparing NEPA documentation for large broad programs and related actions. Tiering is allowed only from an EIS. Tiering of EIS's is a process of ordering



interrelated statements for the various stages of developing and implementing a program or project. Encouraged by CEQ regulations (40 CFR §1502.20, §1508.28) and NASA regulations (14 CFR §1216.314), tiering eliminates repetitive discussions of issues and focuses on the real issues at each level of a program or project. Tiering is appropriate for broad program actions and related individual component actions of the broad program; proposed actions having broad effects (e.g., global, national, or regional) with component actions having more localized effects; and a class of interrelated actions having similar or common impacts, with each specific action having project-specific impacts. Tiering is appropriate when it helps the agency focus on issues that are ripe for a decision.

7.7.2 A set of tiered NEPA documents looks like a funnel, with the EIS at the top addressing a broad action or set of interrelated actions having a set of broad or common impacts and decisions. In descending the funnel, the NEPA documents for the components of the program or the individual actions within the interrelated set have a narrower, project- or component-specific focus.

a. Consider a space program consisting of a suite of missions for the common purpose of exploring a planet. It might be appropriate to prepare and issue a broad EIS that would cover the common issues across the entire program (e.g., criteria for launch vehicle selection, common onboard electric power systems, common spacecraft navigation and propulsion systems and common heating sources).

b. The impacts of these common issues are addressed in a broad EIS. Tiered from the broad EIS could be a series of more narrowly focused individual mission-specific EA's or EIS's, addressing specific mission parameters, such as trajectories, launch vehicles, and power sources. The more narrowly focused EIS's and EA's would not repeat the impact analyses of common issues from the broad EIS; rather, they would summarize those analyses and incorporate them by reference while focusing on the unique mission-specific issues and impacts.

7.7.3 Tiering is based upon an initial EIS addressing broad decisions or actions. The tiered NEPA documents (EA's and EIS's) address components of the broad action.

## 7.8 Interim Actions

7.8.1 While an EIS is being prepared, an agency is prohibited by CEQ regulations (see 40 CFR §1506.1(a)) from taking any action associated solely with the proposal that would have an adverse environmental impact or limit the choice of reasonable alternatives before completing the NEPA process.

7.8.2 If a programmatic or broad scope EIS is being prepared and the action is not covered by an existing programmatic EIS, the agency may not undertake any action within the program that would significantly affect the quality of the human environment before completing the ROD unless the action is justified independently of the program, accompanied by an adequate EIS or other NEPA document, and would not prejudice the ultimate decision on the program (a decision can be prejudiced when an interim action would limit or narrow the alternatives).

7.8.3 While preparing a programmatic or broad scope NASA EA or EIS, if the Sponsoring Entity wants to implement a component of the program or broad action, the above rules must be met and documented in a memorandum or Record of Environmental Consideration (REC) transmitted to the HQ/EMD for concurrence. The HQ/EMD will consult with the Office of the General Counsel and other NASA organizations, as appropriate, in making the determination.

7.8.4 Until the NEPA process is complete, the Sponsoring Entity must not implement any component of the action that will have an impact on the environment or limit the choice of alternatives.

7.8.5 The Sponsoring Entity can develop plans and designs or perform other work necessary to prepare and submit applications for Federal, State, or local permits. In addition, the Sponsoring Entity can apply for permits prudently necessary to maintain the project schedule.

7.8.6 In determining which NASA tenant, applicant, or contractor activities related to a proposed Federal action may be approved or implemented as an interim action, the Sponsoring Entity must determine, among other matters, that--

- a. The activity will not have an adverse environmental impact, and
- b. The expenditure is minimal. It is ordinarily presumed that, except in unusual circumstances, expenditures up to 10 percent of the proposed project's or activity's cost will not compromise the objectivity of NASA's review and decisionmaking. Whether or not expenditures above that level would compromise the Agency's decisionmaking should be considered on a case-by-case basis taking all relevant circumstances into account. See section 3.4 for more information.

## 7.9 Incomplete and Unavailable Information

7.9.1 While preparing an EA or EIS, an agency may find that information needed to evaluate some potentially substantial adverse impacts of an alternative is either unavailable or incomplete, and that analysis is essential to making a reasoned choice among alternatives. When this occurs, CEQ regulations (40 CFR §1502.22) require that it be made clear that such information is lacking and the following steps be taken:

- a. If the means (method) for obtaining the information are known and the costs of obtaining the information are not exorbitant, the Agency must obtain the needed information.
- b. If the means to obtain the information are not known and/or if the costs are exorbitant, then the Agency shall provide the following in the EA or EIS:
  - (1) A statement that the information is incomplete or unavailable,
  - (2) A statement regarding the relevance of the incomplete or unavailable information to making a reasoned choice among alternatives,
  - (3) A summary of existing credible scientific evidence that is relevant to evaluating the reasonably foreseeable significant adverse effects, and
  - (4) The agency's evaluation of the impacts using theoretical approaches or research methods generally accepted in the scientific community.
- c. Applied in the context of this section, reasonably foreseeable effects include impacts that have catastrophic consequences (even if the probability of occurrence is low). Analyses of the impacts must be supported by credible scientific evidence, must not be based on pure conjecture, and must be within the rule of reason.

## 7.10 Modifying FONSI's and ROD's

7.10.1 Occasionally, an existing FONSI or ROD may be modified or revised rather than initiating a new EA or EIS process. Before such an action can be taken, it must be clear that the proposed modification or revision has been adequately addressed by the existing EA or EIS. Strict internal controls apply to all proposals to modify or revise an existing FONSI or ROD.



- a. The Sponsoring Entity contemplating a modification or revision must prepare its recommendation along with justification for the proposed change. The local EMO must be consulted and concur with the recommendation. For a modification of a FONSI issued pursuant to an exceptional action EA, the recommendation is then forwarded to HQ/EMD.
  - b. Proposed revisions or modifications must not pose any substantial new direct, indirect, or cumulative impacts that have not already been addressed in the EA or EIS.
  - c. To modify a FONSI or a ROD issued pursuant to an exceptional action EA, HQ/EMD will review the recommendation, consult with the Office of the General Counsel and other NASA organizations, as appropriate, and advise AAMS. Upon concurrence by AAMS, the Sponsoring Entity prepares the revised FONSI or ROD for publication.
  - d. If a FONSI is involved, the revised FONSI or notice of its availability must be published or distributed.
  - e. Upon concurrence by AAMS, the Sponsoring Entity prepares the revised FONSI or ROD for publication.
  - f. If a ROD is involved, a notice must be published in the Federal Register and local newspapers, as appropriate, outlining the revision and the basis for it. As with the original ROD, the revised ROD is signed by the decisionmaker and made available to interested parties upon request.
- 7.10.2 Signature authority for a revised FONSI and ROD is the same as described in chapters 5 and 6.

## **7.11 Disagreements Between Agencies on EIS Analyses**

7.11.1 Occasionally, the agency sponsoring an EIS may encounter disagreement with another agency regarding the analyses and/or conclusions presented in the document for a significant adverse impact. Disagreements usually occur during public review and comments on the Draft EIS. Such disagreements can arise with other Federal, State, or local agencies or even with a cooperating agency helping to prepare the EIS. Such disagreements should never be taken lightly, and they should be resolved, if at all possible, with the other agency.

7.11.2 When disagreements between Federal agencies cannot be resolved on the agency level, CEQ may be called upon to resolve the matter by either or both agencies (40 CFR Part 1504). In providing guidance regarding what environmental objections are appropriate to refer to CEQ, 40 CFR §1504.2 recommends that after concerted, timely, unsuccessful attempts to resolve the differences with the lead agency, an agency should weigh the potential adverse environmental impacts considering "possible violation of national environmental standards or policies; severity; geographical scope; duration; importance (of the adverse impacts) as precedents; and availability of environmentally preferable alternatives."

7.11.3 An agency disagreeing with a sponsoring agency's EIS must first advise the sponsoring agency at the earliest possible time that it intends to refer the matter to CEQ unless a satisfactory agreement is reached. If the agency finally decides a referral is necessary, and that all avenues for compromise and resolution have been exhausted, the following series of events ensues:

- a. The head of the referring agency transmits a letter to the sponsoring agency advising that it is filing a referral to CEQ and why,
- b. The referring agency delivers its referral to CEQ, including all the information specified in 40 CFR §1504.3(c), no later than 25 days after the Final EIS becomes available to the public via EPA's

## Notice of Availability (NOA),

c. The sponsoring agency then has 25 days to deliver a response to the referral to CEQ or to inform CEQ that no response will be made (40 CFR §1504.3(d)),

d. CEQ then has 25 days after receipt of the referral and the sponsoring agency's response in which to do any or all of the following: conclude that the process of referral and response has finally resolved the matter; initiate discussions with the agencies, attempting to mediate the dispute; hold public hearings or meetings to obtain additional views and information; determine the issue is not of national importance, requesting the agencies to resolve it; determine that the issue should be further negotiated by the referring and lead agencies and is not appropriate for Council consideration until the head of either or both agencies informs CEQ that the differences are irreconcilable; publish its findings and recommendations; or submit the referral and response along with the Council's recommendation to the President for action, and

e. CEQ has 60 days to mediate the disagreement, hold public meetings or hearings, determine that the agencies should continue to negotiate until resolved, or conclude that the disagreements are irreconcilable.

7.11.4 Of particular importance is the EPA's Office of Federal Activities review of the EIS. EPA not only publishes the NOA that starts the public review period for the Draft EIS, it reviews and rates the EIS. Ratings are addressed in the next section.

## 7.12 EPA Rating of EIS's and What it Means

7.12.1 Under Section 309 of the Clean Air Act (CAA) (42 U.S.C. §7609), EPA is charged with reviewing and commenting on "... the environmental impact of any matter relating to duties and responsibilities ... of the (EPA) Administrator, contained in any. . . newly authorized Federal projects. . . and any major Federal agency action . . . to which Section 102(2)(C) of Public Law 91-190 (NEPA requirement for EIS's) applies . . . ."

7.12.2 In practice, EPA has applied the requirement primarily through the review of EIS's (required of all major Federal actions including proposed legislation and regulations. Under the CAA §309 mandate, EPA has set up a system for the review of all EIS's filed with its Office of Federal Activities. The review is done at EPA Headquarters or in one of the EPA regional offices. EPA Headquarters generally reviews policy statements, regulations, legislation, and actions that "embody a high degree of national controversy or significance[,] or pioneer Agency policy." Regional offices review all other EIS's, even those that might concern impacts in more than one EPA region. When more than one region is affected, however, a lead region is designated for the review.

7.12.3 EPA has a two-criteria rating system for EIS's (Policy and Procedures for the Review of Federal Actions Impacting the Environment, EPA Office of Federal Activities, October 3, 1984). The first criterion relates to the anticipated environmental impacts associated with implementing the preferred alternative. If no preferred alternative is identified, then the impacts are rated according to all of the alternatives being considered.

7.12.4 According to EPA guidance, impacts are evaluated primarily on the potential for the project to violate Federal environmental laws and regulations. However, the currently used guidance was published in 1984, and other concerns have developed more recently that are also being screened. These concerns include issues such as environmental justice and pollution prevention.

7.12.5 The environmental rating of EIS's is not based solely on the contents of an EIS. The EPA may use other sources of information and other interpretations of data in determining probable

environmental impacts.

7.12.6 Using the EIS and other sources of information, the environmental impacts of the action are rated in one of the following four categories:

a. LO-Lack Of Objections

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for applying mitigation measures that could be accomplished with no more than minor changes to the proposal.

b. EC-Environmental Concerns

The EPA review has identified environmental impacts that should be avoided to fully protect the environment. Corrective measures may require changes to the preferred alternative or applying mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

c. EO-Environmental Objections

The EPA review has identified significant environmental impacts that must be avoided to adequately protect the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the No-Action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

d. EU-Environmentally Unsatisfactory

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the Final EIS stage, this proposal will be recommended for referral to the CEQ.

7.12.7 In addition to rating the environmental impacts of the proposed action, EPA also rates the adequacy of an EIS's in meeting the requirements of NEPA. The categories used are described below:

a. Category 1-Adequate

EPA believes the Draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

b. Category 2-Insufficient Information

The Draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the Draft EIS, that could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

c. Category 3-Inadequate

EPA does not believe that the Draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS that should be analyzed to

reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the Draft EIS is adequate for the purposes of the NEPA and/or CAA Section 309 review and, thus, should be formally revised and made available for public comment in a supplemental or revised Draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

7.12.8 The application of these categories results in one of the following classifications: LO, EC-1, EC-2, EO-1, EO-2, EO-3, EU-1, EU-2, EU-3, or 3. At both ends of the rating scale (LO and 3), only the environmental or adequacy criteria are used, but in between, both environmental and adequacy criteria are presented. This is logical because if EPA has no objections (LO), the EIS as presented must also be adequate. If the EIS is inadequate (3), it may not be possible to determine whether the environmental impacts of the proposed action are environmentally unsatisfactory.

7.12.9 The results of all EPA reviews are sent directly to the lead agency and are published in the Federal Register. The Draft EIS Comment Letter, sent directly to a lead agency, specifies the overall rating of the EIS (e.g., EO-1) and provides detailed comments, usually as an attachment. The publication in the Federal Register is usually no more than three or four sentences and also contains the overall rating.

7.12.10 After the EIS is rated, EPA may take certain actions based on the rating. The nature of the typical followup action is given in Table 7-1.

Table 7-1. Followup Actions Based on U.S.  
EPA EIS Rating

Category	Lead Agency Prenotification	Follow Up on Draft EIS Comment Letter
LO	None	None
EC-1, EC-2	None	Phone call
EO-1, EO-2	Phone call	Meeting
EO-3, EU-1, EU-2, EU-3, 3	Meeting	Meeting

7.12.11 For all EIS's rated EO, EU, or 3, EPA policy is to review the Final EIS to ensure that the comments were satisfactorily addressed. The results of this review are published in the Federal Register.

## 7.13 Cumulative Impacts

7.13.1 Cumulative impacts are defined in CEQ regulations (40 CFR §1508.7) as, "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions."

a. Cumulative impacts that are individually minor can, when combined in the same geographic area during the life of the proposed action, result in substantial adverse impacts.

b. As an example, a proposed NASA action would result in a loss of 10 hectares (25 acres) of a given habitat type at a construction site. When combined with the previous loss of 5 hectares (12 acres) of the habitat type for construction of existing facilities, the planned loss of an additional 20

hectares (49 acres) for future projects at the Center, and the loss of 200 hectares (494 acres) of the habitat for a planned shopping mall construction by a private developer in an area near the NASA Center, may result in a combined depletion of the habitat type in the region and substantially alter regional ecology or wildlife habitat.

7.13.2 Cumulative impacts must be addressed in EIS's and, as appropriate, in EA's.

7.13.3 This NPR takes into account CEQ guidance found in Considering Cumulative Effects Under the National Environmental Policy Act, Council on Environmental Quality, January 1997. This NPR does not establish new requirements for cumulative impact analyses, nor is it legally binding. Rather, it provides perspectives on and suggests a framework for a rigorous approach to identifying and analyzing cumulative impacts. It also discusses various analytical tools that are available and the approaches used by several Federal agencies.

## 7.14 Facility Closures

a. It may become necessary or desirable in the future for NASA to cease operation and ownership of certain NASA facilities or portions thereof, turning facility ownership over to another Federal, State, or local entity or even the private sector. NEPA applies to potential facility closures.

## 7.15 Conflict of Interest in Preparing NEPA Documents

7.15.1 CEQ regulations (40 CFR §1506.5 (b) and (c)) address preparation of NEPA documents (EA's and EIS's) by parties other than the agency sponsoring the action. In implementing this regulation within NASA, EA's prepared by an applicant or a third party for a NASA action must be evaluated independently by the Sponsoring Entity and local EMO.

- a. The Sponsoring Entity will take responsibility for the scope and content of the EA.
- b. When the action is exceptional as described in chapter 5, HQ/EMD will be consulted and must concur with the scope and content of the EA.
- c. EIS's prepared for a NASA action by a contractor must follow the process outlined in chapter 6, including direct involvement by HQ/EMD, the Office of the General Counsel, and other NASA organizations, as appropriate.

7.15.2 CEQ regulations require that the contractor be chosen (a) solely by the lead agency or by the lead agency in cooperation with the cooperating agency(s) and (b) to ensure that there is no conflict of interest. For NASA EIS's, the contractor will be selected by the Sponsoring Entity. The contractor(s) will execute a disclosure statement prepared by NASA (or cooperating agency, as appropriate) specifying that they have no financial or other interest in the outcome of the project. Figure J-9 in Appendix J illustrates a sample contractor disclosure statement. The Sponsoring Entity and local EMO (and HQ/EMD if requested) will provide guidance to the contractor, participate in preparation, independently evaluate the EIS before its approval by NASA, and assume responsibility for the scope and contents of the EIS.

## 7.16 Cooperative Arrangements

a. NASA often cooperates and enters into agreements with other governmental agencies, private organizations, and the general public on formal and informal levels in complying with NEPA.



Informal cooperation can range from of the relationships that a local EMO has developed with State regulators, local agencies, or interest groups for discussing environmental issues of mutual interest (e.g., preservation of nesting habitat for a locally important species) to cooperative efforts that are more focused in a specific environmental area (e.g., informal consultation on a potential action NASA is planning to take). Informal cooperative arrangements such as these have developed throughout NASA, and can serve as an important and productive means to maintain good neighbor relations and to ensure that NEPA processes benefit from understanding local issues before they become problems.

b. NASA undertakes formal cooperative arrangements when working with (a) Federal and non-Federal applicants seeking to use NASA facilities and/or other NASA services and resources and (b) governmental agencies who have jurisdiction by law over the matter, are participants in the proposal, or have special expertise. Cooperative arrangements under these circumstances are addressed in section 7.16.1. A special form of cooperative arrangement is that of cooperating agency in a NEPA process (40 CFR §1501.6). The cooperating agency arrangement is often accompanied by a written document signed by, or exchanged between, all parties to the arrangement. Cooperating agency arrangements are addressed in section 7.16.2.

#### 7.16.1 Cooperative Arrangements with Non-Federal Entities and Federal Agencies

7.16.1.1 As noted above, NASA may be requested to provide the use of land, facilities, services, or resources to a Federal or non-Federal entity. The non-Federal entity may not strictly speaking be subject to NEPA. However, because NASA will be required to approve the requested activity (i.e., NASA approval is considered a Federal action subject to NEPA review), NEPA applies. In such cases, NASA may require the non-Federal entity to assist in preparing of the NEPA documentation by developing an environmental report, gathering data, and/or preparing analyses. NASA may require the non-Federal entity to assume the cost of preparing the necessary environmental report, information, or studies. The local EMO should provide guidance as to the information and documentation required. In such cases, because NASA is responsible for NEPA compliance, it must assume responsibility for the process and for documenting preparation. Specifically, the non-Federal entity can be requested to support the process, but it cannot assume responsibility for the process. The NASA Sponsoring Entity assumes responsibility for the accuracy, technical adequacy, and use of the information and analyses generated by the non-Federal entity for the NASA NEPA document.

7.16.1.2 A Federal agency proposing to conduct an action at or within a NASA facility would be subject to the requirements of NEPA before implementing its proposal. NEPA documentation would be prepared in accordance with interagency agreement. The host NASA entity (i.e., the Sponsoring Entity) must ensure that the Federal agency prepares the necessary NEPA documentation and the process followed is adequate for NASA's purposes. The Sponsoring Entity is responsible for independently reviewing NEPA documentation prepared and determinations made by the Federal agency. If the Sponsoring Entity concurs with the determinations, the concurrence must be in writing. In appropriate instances (e.g., an EIS), NASA may wish to become a cooperating agency (see section 7.16.2). The local EMO will assist the Sponsoring Entity in making the above determinations.

#### 7.16.2 Cooperating Agency Relationships

7.16.2.1 The concept of cooperating agencies is encouraged in CEQ regulations as a means of avoiding duplication, reducing cost, ensuring cooperation, and integrating NASA's NEPA process with other environmental review requirements. Cooperating agency relationships expedite both processes (i.e., combining NASA NEPA compliance and compliance with other applicable statutory requirements, see section 3.6).



7.16.2.2 While NASA's regulations speak to a broad range of possible interactions with other Federal, State, or local agencies, one element in particular should always be considered by the manager in charge of planning and implementing NEPA compliance for a proposed NASA activity the advisability of formally joining with another agency to prepare a NASA NEPA document (i.e., the use of cooperating agencies).

7.16.2.3 A cooperating agency is defined by CEQ regulations (40 CFR §1508.5) as "... any Federal agency other than a lead agency which has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposal (or reasonable alternative) for legislation or other major Federal action significantly affecting the quality of the human environment."

7.16.2.4 A cooperating agency may also be a State or local agency having similar qualifications (jurisdiction and/or expertise) or an Indian tribe if the environmental effects are on a reservation. A private party cannot act in the role of a cooperating agency for purposes of NEPA.

7.16.2.5 Under NASA NEPA regulations, the AAMS has the following duties regarding cooperating with other agencies:

- a. Remain aware of other Federal, State, and local activities in which NASA has expertise or jurisdiction by law,
- b. Arrange participation by NASA HQ, NASA Centers, Strategic Enterprises, or Program and Staff Offices in reviewing and commenting on other agencies' NEPA documents,
- c. Arrange participation by NASA HQ, NASA Centers, Strategic Enterprises, or Program and Staff Offices in the joint preparation of NEPA documentation by Federal, State, or local agencies,
- d. Determine, in the event that the Sponsoring Entity should wish to adopt another agency's NEPA document, that the document meets NASA's requirements,
- e. Resolve any disagreements between NASA and other agencies as to which agency has the primary responsibility for preparation of a joint NEPA document (i.e., who is the lead agency), and
- f. Serve in a consulting role to NASA HQ, NASA Centers, Strategic Enterprises, or Program and Staff Offices regarding the type of environmental information needed from a non-Federal entity for a permit, lease, easement, or other type of approval from NASA that may lead to an environmental impact; determine the extent of the cooperating party's participation in the required environmental studies and documentation.

### 7.16.3 Duties and Responsibilities of Lead and Cooperating Agencies

7.16.3.1 The agency with primary responsibility for the NEPA process and document preparation is the lead agency. The lead agency is required by CEQ regulations (40 CFR §1501.6) to request participation of cooperating agency(s) at the earliest possible time (see Figure 3-1), use the proposals and analyses provided by the cooperating agency(s) to the maximum extent possible consistent with its responsibility as lead agency, and meet with cooperating agency(s) upon request.

7.16.3.2 Cooperating agencies shall participate in the NEPA process at the earliest possible time; participate in scoping an EIS (see chapter 6); assume responsibility for preparing environmental information and analyses and portions of the NEPA document in its area of special expertise; make staff support available; and use its own funds (the lead agency may, to the extent permitted by funding, fund the cooperating agency's activities and analyses).

7.16.3.3 A potential cooperating agency may decline to participate to the degree requested by the lead agency or may decline entirely if other program commitments dictate. Declining an invitation

to participate as a cooperating agency must be done in writing, with a copy submitted to CEQ. Before formally requesting another agency to act as a cooperating agency, the Sponsoring Entity should consult with that agency about its available resources and the role NASA desires it to undertake. 7.16.4 Determining Need for a Cooperating Agency

7.16.4.1 Cooperating agencies are used primarily during preparation of EIS's and occasionally in the preparation of EA's. Using cooperating agencies in a NEPA compliance activity should be carefully considered and weighed based on its ability to expedite compliance with other environmental laws and regulations and contribute to preparing a quality NEPA document.

7.16.4.2 The Sponsoring Entity considering cooperating agencies during preparation of a NASA NEPA document should consult with HQ/EMD before entering into a cooperating agency relationship (especially if NASA NEPA procedural issues are involved).

7.16.4.3 When the cooperating agency has jurisdiction by law over the action, the lead agency may be required to also satisfy all or portions of the cooperating agency's NEPA process and/or procedures in addition to its own. When an agency cooperates by virtue of special expertise related to some aspect of the action, the lead agency is not necessarily so constrained. The ground rules within which a cooperating agency relationship is entered into should be clearly understood and documented.

#### 7.16.5 When NASA is Requested to be a Cooperating Agency

When a Sponsoring Entity receives a request to serve as a cooperating agency in another agency's NEPA process, the request shall be forwarded to the HQ/EMD. HQ/EMD will evaluate the request, coordinating with other NASA organizations and the requesting agency, as needed, and advise the AAMS. If the AAMS concurs, NASA will serve as a cooperating agency. If the agency requesting NASA's cooperation is a State or local agency, any joint NEPA document must be prepared consistent with NASA NEPA regulations. If NASA declines to participate as a cooperating agency, HQ/EMD, in coordination with the Office of the General Counsel, will communicate with CEQ, as needed.

## 7.17 Electronic Media

The use of electronic media to provide easier public access to official, publicly available Final NASA NEPA documents is encouraged. However, publicly posting work-in-progress documents (e.g., working drafts and internal working papers) on publicly accessible electronic media is strictly prohibited. The only NEPA or NEPA-associated documents that may be considered for public postings are completed and signed public documents such as NOI's, NOA's, FONSI's, ROD's, and Draft and Final EA's and EIS's officially approved for publication. For NEPA documents dealing with local or Center-level actions, the local EMO will approve all public postings after coordination with the Office of the Chief Counsel. For EIS's and exceptional-action EA's, the Sponsoring Entity will not approve any public postings until after coordination with and concurrence by HQ/EMD and the Office of the General Counsel.

## 7.18 NEPA and Environmental Remediation Activities

NEPA documentation normally is not required for remediation actions covered by the Resource Conservation and Recovery Act (RCRA) or the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). NASA has adopted the concept of functional

equivalency with respect to these environmental protection statutes. NASA EMO's may elect to prepare NEPA analyses on those elements of RCRA or CERCLA actions that do not fully address sources of environmental impact. It should be noted that socioeconomic impacts alone are not sufficient to initiate the need for a NEPA document.

## 7.19 Metrics

### 7.19.1 Goals

- a. Goal 1. Ensure that NASA projects and actions have integrated NEPA into the planning process.
- b. Goal 2. Ensure the timely completion of the NEPA process for projects and actions.
- c. Goal 3. Streamline the NEPA process, especially for those projects and actions of little or no environmental consequence.
- d. Goal 4. Document the incorporation of successful mitigation measures and associated cost avoidance measures, and highlight successes, which while not lending themselves to quantification, serve as valuable indicators of the integration of the NEPA process and environmental values into agency planning.

7.19.2 The local EMO's will maintain records of the following information during each government fiscal year, and will supply that information to HQ/EMD no later than 60 days after the close of fiscal year (or more frequently as agreed upon):

- a. The total number of projects/actions implemented (e.g., facility construction started, spacecraft launched, and testing program initiated) during the fiscal year that by statute or regulation required a FONSI or ROD.
- b. Of the number given in section a, indicate the number of FONSI's or ROD's that were issued before the project/action was implemented.
- c. Of the number given in section a, indicate the number of FONSI's or Final EIS's completed on time per Table 3-1.
- d. The number of categorical exclusions (CatEx's) prepared during the fiscal year, along with the reason(s) for the CatEx determinations and the type(s) of actions evaluated.
- e. A brief narrative of no more than four pages, itemizing the beneficial effects of mitigation activities undertaken in the fiscal year, specifically:
  - (1) Cost savings for which monetary estimates can reasonably be made, and
  - (2) A narrative of other benefits achieved that cannot be readily translated into monetary terms (e.g., X acres of wetland not impacted because of the ability to modify project design).

7.19.3 Collecting these data points will assist both the EMO's and HQ/EMD in evaluating the successful integration of NEPA compliance into a local and NASA-wide project planning. HQ/EMD will evaluate the data reported using the following measures:

- a. Metric 1. The level of success will be determined by the ratio of the number in section b to the number in section a.
- b. Metric 2. Progress will be measured by the ratio of of the number in section c to the number in section a.

c. Metric 3. Potential process improvements will be identified by evaluating the information in 7.19.2d, and the improvements may lead to further selective streamlining of the CatEx process. For example, by analyzing the number and types of actions involved, and the reasons for those CatEx determinations, it may be possible to classify certain categories of actions as not requiring a written REC.

d. Metric 4. The information from 7.19.2e provides an opportunity for each EMO to highlight success stories from a financial perspective, and other less quantifiable factors that can be used to gauge the role and effectiveness of NEPA compliance within NASA project planning and implementation.

7.19.4 The value of specific metrics may change over time due to changed conditions, full achievement of an exiting metric, identification of potential process weaknesses, or increased emphasis on certain portions of the NEPA process. Therefore, metrics associated with this guidance may be altered as a result of action by the NASA Environmental Management Board or formal revision of this guidance.

# CHAPTER 8. How to Write Better Environmental Assessments and Environmental Impact Statements

## 8.1 Introduction

- a. Chapter 5 on EA's and chapter 6 on EIS's define the required format and provide guidance for each document. This chapter provides additional guidance and advice for preparing these NEPA documents.
- b. Writing better NEPA documents involves attention to the procedural requirements of the Act, associated CEQ regulations, and NASA regulations (see chapters 1 through 6); involvement of appropriate interdisciplinary technical preparers and analysts; creation and maintenance of an adequate administrative record (see section 3.7.7); and organizational skills.
- c. Write the NEPA document to inform the decisionmaker and the public. Achieve a balance between using plain language and accurately portraying the technical complexity of the issues.

## 8.2 Overall Guidance for Writing EA's and EIS's

A review of chapters 5 and 6 indicates that in terms of format and content, the two documents are similar. The principal differences lie in the breadth and depth of content. Remember, the evaluation in an EA is designed to present information sufficient to determine whether there may be significant impacts that merit more detailed study, analysis, and public input. An EIS presents the results of the detailed study and analysis and attempts to rigorously measure and present the nature and level of potential significance.

- a. Table 8-1 illustrates the required chapters of an EA and EIS.
- b. Table 8-2 provides a summary of general advice for those required chapters common to EA's and EIS's.

Table 8-1. Required Chapters of an EA and EIS Based on CEQ and NASA NEPA Regulations

Chapter	EA	EIS
Title Page	X <sup>1</sup>	X
Cover Sheet	X	X
Abstract	2	X
Executive Summary	3	X
Table of Contents	X	X
Abbreviations/Acronyms/Unit Conversions	3	X
Glossary of Terms/Definitions	3	3
Purpose and Need for the Action	X	X
Description and Comparison of Alternatives	X	X
Description of the Affected Environment	4	X

Environmental Consequences	X <sup>5</sup>	X
References	X	X
List of Preparers	2	X
Agencies, Organizations, and Individuals Consulted	6	X
Index	2	X
Appendices, if any	2	X

1 X indicates a requirement of CEQ and NASA NEPA regulations.

2 Not required by either CEQ or NASA NEPA regulations.

3 Not required, but recommended.

4 A required element of this NPG.

5 Can be combined with the Affected Environment chapter.

6 Titled Agencies and Persons Consulted.

Table 8-2. Summary Preparation Guidance Common to Environmental Assessments and Environmental Impact Statements

EA or EIS Chapter	CEQ Regulations	Guidance
Executive Summary	40 CFR §1502.12	<p>The summary should describe the content of the document, including the underlying purpose and need, the proposed action, each alternative, and the principal environmental issues analyzed with results.</p> <ul style="list-style-type: none"> <li>• Optional per CEQ; required by NASA.</li> <li>• Make data and discussions consistent with what is in the main body of text.</li> <li>• Address the entire EA or EIS, focus on the whole.</li> <li>• Summarize the alternatives, significant environmental impacts, and controversial and unresolved issues.</li> <li>• The Final EIS must identify the preferred alternative and summarize the basis for its selection.</li> </ul>
Purpose and Need for the Action	40 CFR §1502.13	<p>The purpose of the proposed action is to further the need of the Agency, not to perform the action itself. Other agencies refer to this chapter of an EA or EIS as Introduction; NASA retains and uses the title suggested in CEQ regulations. This chapter should answer what the proposed action does to further the mission of the Sponsoring Entity (i.e., why the Sponsoring Entity must involve itself in this endeavor to meet some mission objective or goal).</p> <ul style="list-style-type: none"> <li>• Define who wants to do what, where and why the Federal Agency is proposing the action.</li> <li>• Demonstrate that an Agency need exists.</li> <li>• Explain the linkage if applicable to other NEPA documentation.</li> <li>• Introduce scoping activities (normally only for an EIS).</li> <li>• Define the decisions that need to be made.</li> </ul>



		<ul style="list-style-type: none"> <li>• Provide a paragraph on agencies and members of the public involved in the action.</li> <li>• List those agencies or requirements that may be necessary to perform the proposed action (e.g., if permitting requirements are necessary).</li> </ul>
Description and Comparison of Alternatives	40 CFR §1502.14	<p>Chapter describes the alternatives, including the proposed action and the No-Action alternative, and summarizes the potential environmental consequences of those actions.</p> <p><u>Common Guidance to both EAs and EISs</u></p> <ul style="list-style-type: none"> <li>• Use alternative descriptions that are site-specific. Use graphics where applicable.</li> <li>• Consolidate common implementing actions and or requirements between the alternatives. Describe differences in detail.</li> <li>• Use future conditional tense when describing the alternatives and their potential consequences.</li> <li>• Describe alternatives eliminated from detailed study. Explain why they were eliminated.</li> </ul> <p><u>EIS only</u></p> <ul style="list-style-type: none"> <li>• Identify the range of reasonable alternatives that satisfies the Agency's purpose and need.</li> <li>• Sharply define the differences between the alternatives, including the proposed action and the No-Action alternative.</li> <li>• Use short alternative titles or descriptors for reading ease.</li> <li>• Include reasonable alternatives outside the jurisdiction of the proposing Agency. Issues of illegality are changeable; what is illegal now may not be so in the future.</li> <li>• Present the environmental impacts of the proposed action and alternatives in a comparative form (e.g., tabular, or in a comparative matrix).</li> <li>• Identify the preferred Agency alternative for an EIS (optional for EA).</li> </ul> <p><u>EA only</u></p> <ul style="list-style-type: none"> <li>• Focuses on proposed action and No-Action alternative. Detailed alternatives analysis may not be warranted in certain instances depending on potential environmental impacts.</li> </ul>
Description of the Affected Environment	40 CFR §1502.15	<p>Affected environment should describe existing conditions or baseline data against which the potential impacts can be measured. The affected environment should cover a broad range of environmental factors. Gathering data for this chapter is time consuming. Start early in defining information resources. Organize by resource or alternative.</p> <ul style="list-style-type: none"> <li>• Evaluate potential environmental impacts of the proposed</li> </ul>

		<p>action and the analyzed alternatives.</p> <ul style="list-style-type: none"> <li>• Use current site-specific information. Determine the area of specific concern. Limit discussion of resources to this area.</li> <li>• Illustrate detailed baseline data (e.g., provide graphics and tables), consolidating when applicable. Describe differences in detail.</li> <li>• Quantify data if applicable.</li> <li>• Provide consistent treatment of all environmental factors for all alternatives.</li> <li>• Match level of detail for environmental factors to the magnitude and severity of impacts on each environmental category. If impacts are minor, provide enough detail in the description of that factor to substantiate impact level.</li> <li>• Keep all background material (including copies of references used) and data available for the administrative record.</li> <li>• Incorporate by reference, where applicable, to reduce bulk and repetition with other NEPA documentation.</li> <li>• Describe sensitive receptors that are present in the area and may be affected by the proposed action or the analyzed alternatives.</li> </ul>
Environmental Consequences	40 CFR §1502.16 and §1508.7	<p>Environmental consequences chapter should parallel the organization used in the Affected Environment chapter. Organize consequences by resource or by alternative.</p> <ul style="list-style-type: none"> <li>• Choose the organization type that best suits your specific project.</li> <li>• Introduce the reader to the chapter by explaining that, it is the scientific and analytic basis for the comparison of the alternatives.</li> <li>• Cover all affected resources factors; preserve greatest detail for those resources that are most affected (identified in affected environment chapter). Address environmental impacts in proportion to their potential significance. Focus the impacts analysis and discussion on the actions that have significant or potentially significant impacts.</li> <li>• Begin with the actions (i.e., causes); analyze the potential effects direct, indirect, as well as cumulative. Explain the cause-and-effect relationship between the action and its impact. Do not simply provide the end-result.</li> <li>• Determine the area of impact, and be sure that all visual aids and discussions use this area of impact.</li> <li>• Quantify the effects as much as possible.</li> <li>• Be careful when using the words significant or not significant. These words carry substantial weight in the context of NEPA. Use of the word significant in an EA can signify the potential for an EIS or prejudgement.</li> <li>• Determine the effects for all reasonable alternatives considered, including the No-Action alternative.</li> <li>• Detail the mitigative measures for all alternatives where applicable.</li> <li>• Incorporate by reference, where applicable, to reduce bulk and</li> </ul>

		<p>repetition with other NEPA documentation.</p> <ul style="list-style-type: none"> <li>• Determine and state the unavoidable adverse impacts from each alternative.</li> <li>• Provide sufficient data and references to allow for review and validation of analysis methods. Be sure that all conclusory statements are substantiated by the analysis in the text.</li> <li>• Impact analyses should use accepted methodologies; if innovative methodologies are used, consider using an appendix to explain them. Be prepared to defend them if challenged.</li> <li>• Provide for the cumulative effects of each alternative. For EA's, this needs to be formally addressed only in appropriate instances.</li> </ul> <p><u>EIS only</u></p> <ul style="list-style-type: none"> <li>• Detail the balance or trade offs between the short-term uses and long-term productivity for each alternative.</li> <li>• List the irreversible and irretrievable commitments of resources associated with every alternative.</li> <li>• Identify incomplete and unavailable information as it applies to the analysis. NEPA is a full disclosure statute.</li> </ul>
References	No guidance	<ul style="list-style-type: none"> <li>• Use full sources for citations so that decisionmakers or members of the public can locate the reference if necessary.</li> <li>• Cite classified references as such.</li> <li>• Make the bibliography as uniform as possible; use the most up-to-date references.</li> <li>• If at all practicable, cite personal communications or unpublished data only as sources of information, not as support for conclusions regarding the significance of impacts. Document telephone or types of nonwritten communication contemporaneously or shortly after and provide a written record to the participant(s).</li> </ul>
List of Preparers	40 CFR §1502.17	<p>List of preparers should include the names and contributions of each author.</p> <p><u>EIS only</u></p> <ul style="list-style-type: none"> <li>• If applicable, distinguish between core writing team members and those individuals who submitted backup or supporting studies.</li> <li>• Identify the specific sections written by each member of the interdisciplinary team. Use a table for ease in reading.</li> <li>• The list should include the qualifications of each person.</li> </ul>
Agencies, Organizations, and Individuals Consulted	40 CFR § 1508.9 (b), 40 CFR §1502.19	<p>Distributing the NEPA document assures full and honest notification and disclosure of the Agency's desire to act.</p> <ul style="list-style-type: none"> <li>• Keep an organized list of all agencies, organizations, and persons to whom copies of the NEPA document are sent. (Publication in an EA is optional.)</li> <li>• Make a list of all agencies, organization, and individuals</li> </ul>

		<p>outside of NASA who have contributed any information and/or consulted on the project.</p> <p><u>EA only</u></p> <ul style="list-style-type: none"> <li>• Chapter title should read Agencies and Persons Consulted.</li> </ul>
Index	40 CFR §1502.10	<p>Index chapter should reflect NEPA terms and important concepts, including controversial issues for which decisionmakers and/or members of the public could be interested.</p> <ul style="list-style-type: none"> <li>• Index is required for an EIS.</li> <li>• Make the index detailed enough so that it is useful for readers.</li> <li>• Use see also or refer to for those index citations that are listed elsewhere.</li> </ul>
Appendices	40 CFR §1502.18	<p>Appendices are optional and should consist of material prepared in connection with the written NEPA document.</p> <ul style="list-style-type: none"> <li>• Limit appendices to essential material for understanding the NEPA document. Full text from a supporting study may be used.</li> <li>• Generally technical in nature. While they should be readable for the general public, they may be written in greater technical detail to support or substantiate analyses found in the body of the NEPA document.</li> <li>• Consultation letters and memorandum associated with the project may be included as an appendix.</li> </ul>
Response to Comments	40 CFR §1503.4	<p>Develop a plan for responding to comments early in planning the NEPA process.</p> <ul style="list-style-type: none"> <li>• Keep a clean master copy of the comment letters and catalogue by date of receipt.</li> <li>• Screen all comment letters for the environmental issues raised. Determine issues raised in each comment letter.</li> <li>• Respond seriously to every comment; comments not relevant to environmental (or socioeconomic) issues need only to be so noted.</li> <li>• Comments that are not within the scope of NEPA process should be responded to as not in scope.</li> </ul> <p><u>EIS only</u></p> <ul style="list-style-type: none"> <li>• Responses to Comments chapter can be an appendix or a separate volume in the Final EIS.</li> <li>• Complete letters should be attached to the Final EIS whether or not the comment is deemed relevant unless there are a large number of letters saying essentially the same thing. In such a case, the comments can be summarized.</li> <li>• When changes in response to comments on the Draft EIS are minor, errata sheets may be used, and can be attached to the</li> </ul>

Final EIS document instead of rewriting the draft document.  
See 40 CFR §1503.4(c).

# CHAPTER 9. Environmental Resources Document

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## 9.1 What is an Environmental Resources Document?

9.1.1 An Environmental Resources Document (ERD) is specific to NASA and not required by NEPA or by Council on Environmental Quality (CEQ) regulations. ERD's are addressed in NASA regulations at 14 CFR §1216.319.

9.1.2 The regulations require each NASA Center or major Component Facility to have an ERD to serve as a succinct baseline description of all environmental aspects of the operations of the facility at the time of the ERD's preparation. In effect, the ERD forms a baseline environment description against which the effects of subsequent proposed actions may be judged to determine significance. The local EMO is responsible for preparing, maintaining, and distributing the ERD.

9.1.3 The ERD, when completed, should be published in an appropriate NASA report series so that it is readily available for reference. NASA Headquarters/Environmental Management Division shall be provided with a copy of the completed ERD. The ERD should be updated continually as required by changing conditions (using page changes or other simple techniques); reviewed thoroughly at 5-year intervals; and revised, if necessary, to ensure adequacy. An ERD should conform to the following standard format, to the extent practicable.

## 9.2 Format and Content

9.2.1 The recommended content of an ERD is organized by environmental media (e.g., air and water) and by environmental topic (e.g., waste management and pesticide use). The environmental issues and concerns in the following standard format are illustrative rather than exhaustive. Additional topics should be included by a Center or major Component Facility, as appropriate.

### 9.2.1.1 Title Page

The Title Page would include all data required for citation purposes and the name, address, phone number, and electronic mail address of a contact at the Center or Component Facility for inquiries.

### 9.2.1.2 Table of Contents

The Table of Contents would include at least the section titles in the following paragraphs.

9.2.1.3 Description of Center or Component Facility-This section would include a discussion of the programs and activities conducted at the Center or Component Facility:

- a. An explicit, but brief, description of the location of the Center or Component Facility which includes the boundaries on all sides,
- b. A table that specifies the name, size, and unique features (implications for environmental health and safety) for all major facilities along with a site map to indicate the location of such facilities, and
- c. Resident or tenant agencies at the facility.

9.2.1.4 Air Resources-Meteorology of the site region and ambient air quality characteristics



important to Clean Air Act compliance, including the 1990 Clean Air Act amendments and the General Conformity Rule would be provided along with:

- a. A description of the climate, including relative humidity, mean and extreme temperature variation, surface wind variations, visibility, and precipitation,
- b. A table that lists special requirements of the affected State and both Federal and State ambient air quality standards for air pollutants, including, but not limited, to the following: Sulfur dioxide (SO<sub>2</sub>), particulates, nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), ozone (O<sub>3</sub>), and lead,
- c. A brief general discussion of the current condition of air quality at the facility (a comparative discussion on each ambient standard) and with a table on major sources of air pollution at the Center or Component Facility and the nature of existing techniques for control, and
- d. If a conformity analysis has been prepared for the Center or Component Facility, it should be summarized in the ERD.

9.2.1.5 Water Resources-This discussion would focus on both surface and groundwater resources at and in the vicinity of the Center and would include the following information:

- a. A description of groundwater and surface water at the Center or Component Facility. This description should indicate whether any aquifer at the facility has been designated as the sole and principal drinking water source for the area under Section 1424(2)g of the Safe Drinking Water Act (42 U.S.C. §300f et seq.); whether there are groundwater pollution sources (e.g., deep well injection); and whether there are rivers in the area designated as wild, scenic, or recreations under the Wild and Scenic Rivers Act or designated as having the potential for inclusion under the Act.
- b. A table that lists both Federal- and State-regulated water quality parameters, including, but not limited to, biochemical oxygen demand, total suspended solids, pH, fecal coliform, oils and grease, and temperature.
- c. A brief general discussion of the current condition of water quality at the Center or Component Facility, including each water quality parameter. Major sources of water pollution should be identified, along with the nature of existing techniques for control and the status of any National Pollution Discharge Elimination System (NPDES) permit.

9.2.1.6 Land Resources-This section would describe the physical environment at the Center or Component Facility, as well as current and planned land uses and would include:

- a. A description of topography (slope of terrain and elevation), geology, seismology, soils, and drainage.
- b. A discussion of land use plans, policies, and controls, including any cooperation or participation with State, local, and regional agencies in coastal zone management and planning; the extent to which activities are consistent with existing State coastal zone management plans; and the existence of prime and unique farmlands at or in the vicinity of the Center or Component Facility and the extent to which existing or future activities at the facility may threaten their continued use.
- c. A general discussion of the current policies and procedures for landscaping management. Describe initiatives and practices to implement the five fundamental landscaping principles to
  - (1) use regionally native plants,
  - (2) design, use, or promote construction practices that minimize adverse effects on the natural habitat,
  - (3) seek pollution prevention,
  - (4) implement water efficient practices, and
  - (5) create demonstration projects.

9.2.1.7 Biotic Resources- This section would characterize the ecology of the NASA Center or

Component Facility and include the following:

- a. A description of plants and animals in the area of impact along with a description of unique and important habitats and sensitive food chains, and
- b. A generalized vegetation map of the entire facility and a brief discussion of the vegetation.

9.2.1.8 Endangered Species-This section focuses on Federal- and State-listed threatened and endangered animals and plants, as well as species proposed for listing, and areas of critical habitat at the Center or Component Facility. The following information would be included:

- a. A table listing both federally designated and proposed and State designated endangered or threatened species in the area of impact, and
- b. A brief description of those endangered or threatened species, their ranges, habitats, life history and ecology, unique characteristics, basis for status classification, and species status.

9.2.1.9 Wetlands and Floodplains- This section would include the following:

- a. A base floodplain map of the Center or Component Facility that delineates both the 100-year and 500-year floodplains and a map showing identified wetland areas,
- b. A brief discussion of activities currently located in floodplain or wetlands and existing measures to minimize harm to lives, property, and the natural and beneficial values of floodplains and wetlands, and
- c. Wetlands banking program, if appropriate.

9.2.1.10 Solid Waste Generation, Treatment, Storage, and Disposal-This section would include the following discussion:

- a. A table that identifies the name and current and projected quantities of garbage, refuse, sludges, and other discarded materials, including liquids, semisolids, and contained gases from industrial sources and indicate whether such waste is hazardous or nonhazardous,
- b. A brief description of the Center or Component Facility's management control system for hazardous and toxic waste and a description of current disposal and management practices for nonhazardous waste, and
- c. A description of the pollution prevention plan, noting key initiatives planned or underway for reducing releases of pollutants from facility operations.

9.2.1.11 Toxic Substances-The exposure standards and effluent limits under the Clean Water Act and Clean Air Act would be discussed in this section, including:

- a. Descriptions of the management programs implemented for the Toxic Substances Control Act (TSCA),
- b. A table that lists standards and prohibitions for hazardous air pollutants, such as vinyl chloride, asbestos, beryllium, and mercury, and standards and prohibitions for toxic water pollutants, such as polychlorinated biphenyl (PCB), benzidine, aldrin/dieldrin, dichlorodiphenyltrichloroethane (commonly referred to as DDT), and other pesticides-if they are present or discharged at the Center or Component Facility, and
- c. A table that identifies the quantities and major sources of these pollutants and describes the nature of existing techniques for control.

9.2.1.12 Pesticides-A brief discussion of current policies and procedures for integrated pest management would include a description of:

- a. Initiatives to reduce pesticide use,
- b. Management practices for permitting, training, storage, and disposal of regulated pesticides, and
- c. A list of pesticides commonly used.

9.2.1.13 Radioactive Materials and Non-Ionizing Radiation-This section should include a table that identifies the type of radiation, potential population exposed, source of the radiation, degree of hazard, and nature of control techniques. (Sources of such radiation include, but are not limited to, nuclear materials, radio transmitters, radar transmitters, lasers, and electromagnetic fields from high voltage utility facilities.)

9.2.1.14 Noise, Sonic Boom, and Vibration-A table or figure that identifies the major sources, levels, population affected, and any clarifying remarks regarding noise, sonic boom, and vibration would be included in this section. Noise contours are encouraged.

9.2.1.15 Historical, Archaeological, and Cultural Factors-This section would provide the following:

- a. A description of the historical setting, a list of historical and archaeological resources at or in the vicinity of the Center or Component Facility, and a list of properties (in the vicinity) that are National Historic Landmarks or are listed in or may be eligible for listing in the National Register of Historic Places, and
- b. A description of schools, hospitals, churches, social focus, recreational opportunities, and facilities in the vicinity.

9.2.1.16 Economic, Population, and Employment Factors-This section would include the following:

- a. A description of population density, composition, and distribution, and
- b. A reference to the Center or Component Facility Environmental Justice Implementation Plan, providing summary information on minority and low income populations around the Center, and
- c. A description of police and fire protection, health services, public transportation, nature of traffic, and transportation route, and
- d. A description of the general nature of employment opportunities and general size and nature of labor force.

9.2.1.17 Special Land Uses in the Vicinity of the Center or Component Facility-The Center or Component Facility location relative to the following special land uses would be identified in this section:

- a. Wildlife refuges,
- b. National seashores,
- c. Wild and scenic rivers,
- d. National and State parks, and
- e. Hospitals.

9.2.1.18 Definitions, Abbreviations, and Conversion Factors

## 9.2.1.19 Index

# CHAPTER 10. Executive Order 12114, Environmental Effects Abroad of Major Federal Actions

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## 10.1 Executive Order 12114

10.1.1 Executive Order (EO) 12114 was issued January 4, 1979, "solely for the purpose of establishing internal procedures for Federal agencies to consider the significant effects of their actions on the environment outside the United States, its territories and possessions . . . ." (EO 12114, Section 3-1). The EO also specifically provided that its purpose is to enable the decisionmakers of the Federal agencies to be informed of pertinent environmental considerations, and factor such considerations in their decisions; however, such decisionmakers must still take into account considerations such as foreign policy, national security, and other relevant special circumstances (EO 12114, Sections 1-1 and 2-5).

10.1.2 EO 12114 defined the environment to mean only the natural and physical environment, but not social, economic, or other environments (EO 12114, Section 3-4). Section 2-3 of the EO encompassed the following categories of major Federal actions abroad:

a. Actions significantly affecting the environment of the global commons outside the jurisdiction of any nation (e.g., the oceans and the atmosphere).

b. Actions significantly affecting the environment of a foreign nation not participating with the United States and not otherwise involved in the action (e.g., the reentry of a spacecraft and impact on such nation's environment).

c. Actions significantly affecting the environment of a foreign nation which provide to that nation:

(1) A product or physical project producing a principal product or an emission or effluent, which is prohibited or strictly regulated by Federal law, in the U.S., because its toxic effects on the environment create a serious public health risk (e.g., DDT, asbestos, polychlorinated biphenyl (PCB); but not, for example, sulfur dioxide, chlorine, or ammonia).

(2) A physical project which in the U.S. is prohibited or strictly regulated by Federal law to protect the environment against radioactive substances (e.g., a nuclear reactor; but not for example export of a nuclear fuel for commercial power generation).

d. Actions significantly affecting natural or ecological resources of global importance, either designated for protection by the President or protected by a binding international agreement (e.g., protection of whales or migratory species; or binational transboundary agreements such as those between the United States and Canada).

10.1.3 In addition, and with the exception of global environmental impacts (item 1 above), the actions are subject to exemptions and considerations enumerated under Section 2-4 of the EO. These exemptions include actions such as those taken by the President or pursuant to a direction of the President (e.g., national interest or security, or armed conflict); export licenses or permits or export approvals; relating to nuclear activities, other than actions providing a nuclear production or utilization, or waste management facility; and disaster or emergency relief. Further, the agency may

consider relevant factors such as: modification of the content, timing, and availability of its environmental documents; diplomatic relations; international competition; or the difficulty of obtaining the information needed to prepare an adequate assessment.

10.1.4 Section 3-2 of the EO requires that the U.S. Department of State (DOS) coordinate the communications with foreign governments concerning environmental agreements or other arrangements pursuant to this EO. (See also, NASA regulations at 14 CFR §1216.321, EO 12114, and Council on Environmental Quality guidance in Appendix F.)

## **10.2 What EO 12114 is Not**

10.2.1 EO 12114 is not NEPA or the implementation of NEPA; however, EO 12114 does further the purpose of NEPA.

10.2.2 EO 12114 does not create and must not be construed as creating a cause of action against the Agency, and does not afford any person or entity legal standing to pursue a cause of action. While it fosters awareness of environmental concerns and facilitates environmental cooperation with foreign nations, EO 12114 does not take away the discretion of the Head of the Agency, or assign the Agency determination to any other Agency or subject it to higher review.

10.2.3 It does not mandate duplication or multiplicity of environmental documentation in the event of multiple environmental impacts (see EO 12114, Section 3-5).

## **10.3 The Role of the Office of the General Counsel**

The Office of the General Counsel, or designee, is the NASA point of contact and official NASA representative on any matter involving EO 12114. Accordingly, any action by, or any implementation or legal interpretation of EO 12114 requires consultations with and the concurrence of the designee of the Office of the General Counsel.

## **10.4 Other NASA Responsibilities and Actions**

10.4.1 The Sponsoring Entity and local Environmental Management Office (EMO) contemplating an action which would have global environmental effects or effects outside the territorial jurisdiction of the U.S. must notify the NASA Headquarters/Environmental Management Division (HQ/EMD). The HQ/EMD will, in turn, coordinate with the Office of the General Counsel (see section 10.3), the Assistant Administrator for External Relations, and other NASA organizations as appropriate; and assist the Sponsoring Entity to develop a plan of action, (such a plan is subject to the concurrence of the Office of the General Counsel). For illustrative purposes only, such a plan may include the following:

- a. Environmental evaluations shall be timely conducted and coordinated, during the planning of the action, by the Sponsoring Entity and the local EMO.
- b. The early evaluation should identify any agency whose expertise or cooperation may be required, comply with the NASA regulations (14 CFR §1216.321) and this chapter (see the EO at Appendix F), and other pertinent provisions of this NASA Procedural Requirement.
- c. The participation of cooperating agency(ies) will be facilitated by the HQ/EMD in full consultation and coordination with the Office of the General Counsel, as well as the Assistant Administrator for External Relations respecting DOS or foreign participation.



10.4.2 For effects covered by EO 12114, even if the determination by the Sponsoring Entity and the local EMO is that the impacts are not significant, the determination must be submitted to the HQ/EMD by a memorandum or Record of Environmental Consideration. The submittal must state the reasoning for the determination of not significant impacts. The HQ/EMD will follow the procedures stated in the first paragraph of this section of this chapter. If after such coordination, and concurrence by the Office of the General Counsel, it is determined that effects of the action are significant, the Assistant Administrator for Institutional and Corporate Management will notify the Sponsoring Entity and provide the follow-on appropriate procedures. These may include:

- a. If the environmental impact(s) significantly affect the global commons, an EIS is required (EO 12114, see Section 2-4(b) (i)).
- b. If the impact(s) significantly affect one or more foreign nations, a bilateral or multilateral environmental studies, a concise review of environmental issues involved, or other appropriate document (e.g., assessment or analyses), as determined by NASA, may be required (EO 12114, see Section 2-4(b)(ii)&(iii)).
- c. If impact(s) significantly affect natural or ecological resources of global importance, an EIS, environmental assessment (EA), concise reviews of environmental issues involved, or other appropriate environmental documents, as determined by NASA, may be required (EO 12114, see Section 2-4(b)(iv)).

10.4.3 The bilateral or multilateral environmental studies, or the concise reviews of environmental issues involved, may follow the format of an EA except, of course, that any reference to the need for an EIS or a finding of no significant impact would be omitted. NASA (i.e., the Assistant Administrator for Institutional and Corporate Management, HQ/EMD, in concert with the Office of the General Counsel, and the Assistant Administrator for External Relations, and in coordination with the Sponsoring Entity) will consult and coordinate with the DOS to ascertain, through official channels, the extent of participation by, or contribution of or from, the affected nation(s), in preparation of any environmental documents. The level of the environmental document may then be determined based on the outcome of the consultations.

10.4.4 Environmental documents prepared pursuant to this EO must be submitted to the HQ/EMD for coordination with the Office of the General Counsel, the Assistant Administrator for External Relations, and other appropriate NASA organizations. If the views of the NASA concurring offices and cooperating entity, if any, are that the action should proceed, the AA for Institutional and Corporate Management will submit the documentation and recommendations to the Assistant Administrator of the organization responsible for deciding whether to implement the action. If an issue remains unresolved or if one NASA organization withholds its concurrence, the matter should be promptly coordinated with the Office of the General Counsel for resolution. If the issue or nonconcurrence remains unresolved, the AAMS (in coordination with the General Counsel, the Assistant Administrator for External Relations, and other NASA organizations as appropriate) may recommend to the Sponsoring Entity that the matter be elevated for resolution to the Office of the NASA Administrator through appropriate channels.

# CHAPTER 11. Potential Sources of Environmental Information

## 11.1 Use of Environmental Resources Documents

11.1.1 NASA Centers and, as appropriate, major Component Facilities have an Environmental Resources Document (ERD) on file that serves as an initial source of baseline environmental information for the facility (see chapter 9). An ERD can, thus, be a useful resource for performing an environmental evaluation and preparing the Affected Environment chapter of an environmental assessment (EA) or environmental impact statement (EIS). Another source of information can be found in recent EA's and EIS's prepared for earlier NASA actions.

11.1.2 In addition to these in house information sources, a number of other resources are available, particularly for environmental information on areas outside NASA Centers and facilities. A number of these potential sources of information, collated by topical area, are identified below.

## 11.2 Land Use, Soils, Geology, and Topography

11.2.1 General land use information, including information on special use lands, can be obtained from a number of sources. Particular attention needs to be paid to certain types of land uses. For example, the Farmland Protection Policy Act (7 U.S.C. §4201 et seq.) provides protection for important farmland. The United States Department of Agriculture has issued a final rule, 7 of CFR Part 658, implementing the Farmland Protection Policy Act.

11.2.2 In addition, certain properties are either administered by Federal, State, and local agencies or have been accorded special protection through formal designation. Additional environmental review requirements or permits may apply to use of such lands. Formally classified lands include, but are not necessarily limited to, national parks and monuments; national natural landmarks; national battlefields; wilderness areas; wild, scenic, and recreational rivers; wildlife refuges; national seashores, lake shores, and trails; state parks; Bureau of Land Management-administered lands; national forest and grasslands; and Native American-owned lands.

### 11.2.3 Potential Sources of Information

- a. U.S. Geological Survey (USGS) maps
- b. Natural Resources Conservation Service (NRCS) Soil Survey maps-general land use information can be obtained from the State Conservationist or NRCS field office
- c. State Conservationist, NRCS field office-important farmland and erosion control
- d. National Park Service-national natural landmarks; national parks; national battlefields and monuments; national seashores and lake shores; national recreational areas; national trails; and wild, scenic, and recreational rivers and those in the national inventory
- e. Bureau of Land Management (BLM)-administered lands and wilderness areas
- f. U.S. Forest Service (USFS)-administered lands, wilderness areas, and forest lands
- g. U.S. Fish and Wildlife Service (USFWS)-wildlife refuges
- h. State and local land management and planning agencies-wild, scenic, and recreational rivers, state and local parks and other state-owned lands
- i. State Department of Natural Resources (DNR) or equivalent
- j. U.S. Bureau of Indian Affairs-tribal lands (contact with individual tribes may also be necessary).

## 11.3 Floodplains

11.3.1 Executive Order (EO) 11988, Floodplain Management, requires Federal agencies to avoid actions, to the extent practicable, that will result in the location of facilities in floodplains and/or affect floodplain values. Floodplain management guidelines require Federal agencies to apply the 0.2 percent or 500-year flood occurrence standard to the location of critical facilities. Critical facilities include health care facilities, emergency service facilities, and areas used for the storage of hazardous materials.

### 11.3.2 Potential Sources of Information

- a. Federal Emergency Management Agency (FEMA)-Flood Hazard Boundary Maps. Under EO 11988, these maps must be used if available
- b. COE-floodplain information in the absence of FEMA maps; assessment of floodplain impacts
- c. NRCS-same information as provided by COE
- d. USGS-same information as provided by COE.

## 11.4 Wetlands

11.4.1 EO 11990, Protection of Wetlands, is directed at minimizing the destruction, loss, or degradation of wetlands and preserving and enhancing the natural and beneficial values of wetlands.

11.4.2 Section 404 of the Clean Water Act requires that anyone proposing to deposit dredged or fill material into waters of the United States including wetlands, must obtain a permit granted by the COE.

11.4.3 Nationwide Wetland Inventory Maps can be obtained from the USFWS; however, not all wetlands have been mapped. Soil Survey Maps should also be consulted.

### 11.4.4 Potential Sources of Information

- a. Nationwide Wetland Inventory Maps-contact the National Cartographic Information Center, U.S. Geological Survey, 507 National Center,

Reston, Virginia 22092

- b. COE
- c. USFWS
- d. NRCS-Soil Survey Maps (hydric soils)
- e. State DNR-Wetland Inventory Maps.

## 11.5 Cultural Resources

11.5.1 The National Historic Preservation Act of 1966 and the Advisory Council on Historic Preservation's implementing regulations, 36 CFR Part 800, Protection of Historic Properties, require Federal agencies to take into account the effect their actions may have on historic properties before carrying out such actions.

### 11.5.2 Potential Sources of Information

- a. National Register of Historic Places
- b. State Historic Preservation Office
- c. State or local historical and archaeological societies.

## 11.6 Threatened and Endangered Species

11.6.1 The Endangered Species Act of 1973, as amended (16 U.S.C. §1531 et seq.) establishes a national program for the conservation and protection of threatened and endangered species of plants and animals and preservation of habitats upon which they depend. Federal agencies should consult with the USFWS or the National Marine Fisheries Service, as appropriate. The appropriate State agency should also be contacted for information on State-listed species and concerns.

### 11.6.2 Potential Sources of Information

- a. USFWS, Region or Field Office
- b. National Marine Fisheries Service for marine and anadromous species or coastal projects
- c. State DNR or other appropriate state agency (for equivalent state species).

## 11.7 Fish and Wildlife Resources

11.7.1 Fish and wildlife resources are important to the ecology of an area and also constitute important recreational and commercial resources.

### 11.7.2 Potential Sources of Information

- a. State DNR or equivalent
- b. USFWS
- c. Administering agency on Federal, State, and local government-managed lands.

## 11.8 Vegetation

11.8.1 Vegetation not only provides wildlife habitat, but it also stabilizes soils, prevents erosion, and can be an important economic resource.

### 11.8.2 Potential Sources of Information

- a. State Conservationist, NRCS area or field office
- b. State Division of Forestry or equivalent
- c. State DNR or equivalent
- d. USFWS
- e. Administering agency on Federal, State, or local government-managed lands.

## 11.9 Coastal Areas

11.9.1 Coastal areas serve as wildlife habitat and buffer inland areas from storms and hurricanes. The Coastal Zone Management Act of 1972, as amended (16 U.S.C. §1451 et seq.) applies to all American lands on the boundary of any ocean or arm thereof, and the Great Lakes.

11.9.2 The Coastal Barrier Resources Act and the Coastal Barrier Improvement Act (16 U.S.C. §3501 et seq. and 42 U.S.C. §4028) apply to selected geographic areas called Coastal Barrier Resources System (CBRS) units. CBRS units have not yet been designated for the entire coastal U.S.

### 11.9.3 Potential Sources of Information

- a. State Coastal Zone Management Agency
- b. USFWS- coastal barrier resource information
- c. CBRS unit maps are available from the United States Geologic Service Distribution Branch, Open Files Services, Box 25425, Denver, Colorado 80225.

## 11.10 Air Quality

11.10.1 Air quality is subject to regulation by the Clean Air Act as amended in 1990. Within each state, a State Implementation Plan forms the framework for emission control.

### 11.10.2 Potential Sources of Information

- a. State Division of Air Quality or equivalent (or regional Air Quality District)
- b. U.S. Environmental Protection Agency Regional Office.

## 11.11 Water Quality

11.11.1 Water quality can be affected through direct discharge of project-generated effluents into a watercourse and by indirect runoff or leaching into surface or groundwater.

### 11.11.2 Potential Sources of Information

- a. COE-grants permits for certain dredge or fill operations in a waterway
- b. NRCS
- c. State or local conservationist
- d. State DNR or equivalent office
- e. U.S. Environmental Protection Agency Regional Office.

## 11.12 Aesthetics

11.12.1 Impacts to the visual quality of an area can be associated with constructing of a new building or structure. Visual impacts are particularly important for projects near areas of high scenic value (e.g., wilderness areas, national parks and forests, and scenic or national inventory rivers).

### 11.12.2 Potential Sources of Information

- a. Federal land management agencies
- b. State land management agencies
- c. National Park Service

## 11.13 Transportation

11.13.1 Transportation issues associated with a proposed project can range from impacts to traffic volumes on local highways; to interference from high structures near airports (e.g., microwave towers); to airspace restrictions.

### 11.13.2 Potential Sources of Information

- a. Federal Aviation Administration
- b. Federal Highway Administration
- c. State Highway Department
- d. COE
- e. Department of Commerce (National Oceanic and Atmospheric Administration)-air space maps.

## 11.14 Socioeconomic and Community Resources

11.14.1 Some projects may result in impacts that affect socioeconomic resources and can include impacts to the demographic makeup of an area or public safety resources (e.g., police, fire, emergency medical).

11.14.2 In addition, EO 12898, Environmental Justice, was created to prevent federally assisted projects from adversely affecting the environments of minority populations and low-income communities at a disproportionately high rate.

### 11.14.3 Potential Sources of Information

- a. NASA Center Environmental Justice implementation Plan
- b. Local, regional, State planning offices
- c. Census Bureau
- d. Department of Commerce.

## 11.15 Sources or Electronic Information

11.15.1 Many sources of information exist electronically, the most user-friendly and accessible being information sources on the World Wide Web. Federal and State Agencies and other public and private institutions have made many reference materials available on their Web sites.

11.15.2 Table 11-1 provides a short list of available resources. This list is not comprehensive and is subject to change. Many State and local agencies and organizations also provide information on the web. For example, the California Environmental Protection Agency Web site at address <http://ceres.ca.gov/wetlands/agencies/calepa.html> provides links to the State's regulatory agencies as well as to State laws and regulations.

Table 11-1. Web Sites for Environmental Information <sup>1</sup>

Organization	Address	Note
The Council on Environmental Quality	<a href="http://ceq.eh.doe.gov">http://ceq.eh.doe.gov</a> or <a href="http://www.whitehouse.gov/CEQ">http://www.whitehouse.gov/CEQ</a>	Includes CEQ's NEPANet and other resources related to NEPA
U.S. EPA	<a href="http://www.epa.gov">http://www.epa.gov</a>	
Code of Federal Regulations	<a href="http://www.access.gpo.gov/nara/cfr/cfr-table-search.html">http://www.access.gpo.gov/nara/cfr/cfr-table-search.html</a>	
Federal Register	<a href="http://www.access.gpo.gov/su_docs/aces/aces140.html">http://www.access.gpo.gov/su_docs/aces/aces140.html</a>	With search capability
U.S. Government Printing Office	<a href="http://www.access.gpo.gov/index.html">http://www.access.gpo.gov/index.html</a> or <a href="http://www.access.gpo.gov/su_docs/db2.html">http://www.access.gpo.gov/su_docs/db2.html</a>	Electronic access to many Government Printing Office publications, including the <u>Federal Register</u> .
Federal Web Locator	<a href="http://www.firstgov.com/Agencies/Federal/Federal_Government.shtml">http://www.firstgov.com/Agencies/Federal/Federal_Government.shtml</a>	Access to World Wide Web site of most, if not all, Federal agencies and organizations.
Environmental Professional's Virtual Desktop	<a href="http://www.clay.net/ep1.html">http://www.clay.net/ep1.html</a>	
Ambient Concentrations of Particulate Matter	<a href="http://capita.wustl.edu/CAPITA/CAPITAREPORTS/CritDocPMConc96/CritDocEnvironConc.htm">http://capita.wustl.edu/CAPITA/CAPITAREPORTS/CritDocPMConc96/CritDocEnvironConc.htm</a>	
KSC Ecological Resources Home Page	<a href="http://environmental.ksc.nasa.gov/Nepa/nepa.htm">http://environmental.ksc.nasa.gov/Nepa/nepa.htm</a>	
KSC Environmental Program Office Home Page	<a href="http://environmental.ksc.nasa.gov/">http://environmental.ksc.nasa.gov/</a>	
The Enviroweb	<a href="http://www.envirolink.org/index.html">http://www.envirolink.org/index.html</a>	
The Wilderness Society	<a href="http://www.tws.org">http://www.tws.org</a> or <a href="http://www.wilderness.org/">http://www.wilderness.org/</a>	Both go to the same web page.
National Cancer Institute Home Page	<a href="http://www.nci.nih.gov">http://www.nci.nih.gov</a>	
World Health Organization	<a href="http://www.who.ch">http://www.who.ch</a>	
U.S. DOE NEPA	<a href="http://www.eh.doe.gov/nepa/">http://www.eh.doe.gov/nepa/</a>	

Econonet Home Page	<a href="http://www.econet.apc.org/econet">http://www.econet.apc.org/econet</a> or <a href="http://www.igc.org/igc/gateway/enindex.html">http://www.igc.org/igc/gateway/enindex.html</a>	
U.S. Department of Interior	<a href="http://www.doi.gov">http://www.doi.gov</a>	
U.S. Department of Health & Human Services	<a href="http://os.dhhs.gov">http://os.dhhs.gov</a>	
National Oceanographic Data Center	<a href="http://www.nodc.noaa.gov">http://www.nodc.noaa.gov</a>	

<sup>1</sup> Web sites are subject to change.



## CHAPTER 12. Other NEPA References

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- e. U.S. Department of the Air Force, Environmental Impact Analysis Process Desk Reference, Headquarters, U.S. Air Force Office of the Civil Engineer, May, 1995.
- f. U.S. Department of Energy (DOE), Recommendations for the Preparation of Environmental Assessments and Environmental Impact Statements, Office of NEPA Oversight, U.S. Department of Energy, May, 1993.
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- j. U.S. Department of Housing and Urban Development, Environmental Review Guide for Community Development Block Grant Programs Under Title 1 of the Housing and Community Development Act of 1974, as amended, September, 1991.
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# APPENDIX A. Common Metric/British System Equivalents

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## Linear

1 centimeter (cm) = 0.3937 inch

1 inch = 2.54 cm

1 centimeter = 0.0328 foot (ft)

1 foot = 30.48 cm

1 meter (m) = 3.2808 feet

1 ft = 0.3048 m

1 meter = 0.0006 mile (mi)

1 mi = 1609.3440 m

1 kilometer (km) = 0.6214 mile

1 mi = 1.6093 km

1 kilometer = 0.53996 nautical mile (nmi)

1 nmi = 1.8520 km

1 mi = 0.87 nmi

1 nmi = 1.15 mi

## Area

1 square centimeter (cm<sup>2</sup>) = 0.1550 square inch (in<sup>2</sup>)1 in<sup>2</sup> = 6.4516 cm<sup>2</sup>1 square meter (m<sup>2</sup>) = 10.7639 square feet (ft<sup>2</sup>)1 ft<sup>2</sup> = 0.09290 m<sup>2</sup>1 square kilometer (km<sup>2</sup>) = 0.3861 square mile (mi<sup>2</sup>)1 mi<sup>2</sup> = 2.5900 km<sup>2</sup>

1 hectare (ha) = 2.4710 acres (ac)

1 ac = 0.4047 ha

1 hectare (ha) = 10,000 square meters (m<sup>2</sup>)1 ft<sup>2</sup> = 0.000022957 ac

## Volume

1 cubic centimeter (cm<sup>3</sup>) = 0.0610 cubic inch (in<sup>3</sup>)1 in<sup>3</sup> = 16.3871 cm<sup>3</sup>1 cubic meter (m<sup>3</sup>) = 35.3147 cubic feet (ft<sup>3</sup>)1 ft<sup>3</sup> = 0.0283 m<sup>3</sup>1 cubic meter (m<sup>3</sup>) = 1.308 cubic yards (yd<sup>3</sup>)1 yd<sup>3</sup> = 0.76455 m<sup>3</sup>

1 liter (l) = 1.0567 quarts (qt)

1 qt = 0.9463264 l

1 liter = 0.2642 gallon (gal)

1 gal = 3.7845 l

1 kiloliter (kl) = 264.2 gal

1 gal = 0.0038 kl

## Weight

1 gram (g) = 0.0353 ounce (oz)

1 oz = 28.3495 g

1 kilogram (kg) = 2.2046 pounds (lb)

1 lb = 0.4536 kg

1 metric ton (mt) = 1.1023 tons

1 ton = 0.9072 metric ton

## Energy

1 joule = 0.0009 British thermal unit (BTU)

1 BTU = 1054.18 joule

1 joule = 0.2392 gram-calorie (g-cal)

1 g-cal = 4.1819 joule



**Pressure**

1 newton/square meter ( $\text{N/m}^2$ ) = 0.0208  
pound/square foot (psf)                      1 psf = 48  $\text{N/m}^2$

**Force**

1 newton (N) = 0.2248 pound-force (lbf)                      1 lbf = 4.4478N

**Radiation**

1 becquerel (Bq) =  $2.703 \times 10^{-11}$  curies (Ci)                      1 Ci =  $3.70 \times 10^{10}$   
Bq  
1 sievert (Sv) = 100 rem                      1 rem = 0.01 Sv

# APPENDIX B. Glossary/Definitions

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## Council on Environmental Quality

The President's Council on Environmental Quality (CEQ) was established by the enactment of NEPA. The CEQ was charged with developing regulations to be followed by all Federal agencies in developing and implementing their own specific NEPA implementation policies and procedures.

## environmental evaluation

An environmental evaluation is the analysis of the environmental effects of proposed actions, including alternative proposals. The analyses are carried out from the very earliest of planning studies for the action in question and are the materials from which the more formal environmental assessments, environmental impact statements, and public record of decisions are made.

## Environmental Management Office

Each NASA Center and Component Facilities have an Environmental Management Office (EMO) which is usually delegated the responsibility for implementing NEPA. The EMO may have a different designation. EMO's perform the working level functions of the NEPA process.

## exceptional action EA

An exception action environmental assessment (EA) addresses an action that is closely similar to one that normally requires an EIS, but it is unclear an EIS is required; or is national in scope (i.e., multi-centered with environmental impacts at two or more NASA Centers, Component Facilities, or geographic locations), subject to national environmental controversy; or may require a mitigative FONSI.

## Headquarters Environmental Management Division

The Headquarters Environmental Management Division (HQ/EMD) assists the Assistant Administrator for Institutional and Corporate Management in implementing assigned environmental management duties and responsibilities for NEPA functions. HQ/EMD is available for consultation and nonlegal advice to other NASA entities for implementing assigned environmental responsibilities under NEPA.

## Human Space Flight (HSF)

Human Space Flight (HSF), which encompasses activities similar in scope to SAT activities but which are primarily focused on human space flight. Examples include the national fleet of Space Shuttle Orbiters, the main engines, launch sites, mission operations, initial spares, production tooling and supporting activities, launch operations, and tracking and data acquisition.

## **Mission support (MS)**

Mission support (MS) includes four subcategories: (1) Research and Program management (Personnel and related costs, Travel and Research Operations Support); (2) Construction of Facilities (Discrete projects, minor revitalization and construction, facility planning and design, and environmental compliance); (3) Safety, Reliability and Quality Assurance; and (4) Space Communication Services.

## **mitigative FONSI**

A mitigative Finding Of No Significant Impact (FONSI) is directly linked to an EA in which mitigative measures are incorporated to avoid substantial environmental impacts or to reduce impacts, individually or cumulatively, to a non-significant level.

## **NASA facility**

NASA facility is defined to include NASA Headquarters, NASA Centers, and their Component Facilities.

## **National Environmental Policy Act (NEPA) (42 U.S.C. 4321 et. seq.)**

The National Environmental Policy Act of 1969 (NEPA), as amended sets the Nation's policy and goals for protection and enhancement of the environment, and is a procedural statute for application by all Federal agencies. NEPA also established the President's Council on Environmental Quality.

## **national scope**

National scope is defined as being multicentered, involving environmental impacts occurring at two or more NASA Centers (including NASA HQ), Component Facilities or geographic locations.

## **public**

The public is defined as individuals (i.e., public citizens), community and private organizations, and environmental interest groups.

## **Science, Aeronautics, and Technology (SAT)**

Science, Aeronautics, and Technology (SAT), which encompasses research and development activities directed towards attaining the objectives of a specific mission, project, or program. This category includes NASA aeronautics and space program elements, such as the development of new propulsion systems, spacecraft development and operations, flight projects, science instrument development and operations, and space transportation systems.

## **Sponsoring Entity**

Sponsoring Entities, for purposes of this NPR, include NASA Headquarters, NASA Centers (including Component Facilities), Strategic Enterprises, Program and Staff Offices. In the case of the Jet Propulsion Laboratory (JPL), the Sponsoring Entity shall be deemed to be the NASA Headquarters Office of Space Science (OSS). NASA OSS personnel may call upon and utilize the technical resources available through the JPL operating contractor.

# APPENDIX C. National Environmental Policy Act

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See address: <http://ceq.eh.doe.gov>

# APPENDIX D. Council on Environmental Quality Regulations

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See address: <http://ceq.eh.doe.gov>

# APPENDIX E. NASA's Policy and Procedures

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14 CFR Part 1216 Subparts 1216.1 and 1216.3

See address: <http://www.access.gpo.gov/nara/cfr/cfr-retrieve.html>



# APPENDIX F. NASA's Executive Order 12114: Environmental Effects Abroad of Major Federal Actions

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See address: <http://ceq.eh.doe.gov/achiev/executive/eo12114.htm>

# APPENDIX G. Other Guidance

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Appendix G provides internet addresses for other NEPA guidance.

See generally:

[http://www.hq.nasa.gov/office/codej/codeje/je\\_site/nepa/about\\_nepa.html](http://www.hq.nasa.gov/office/codej/codeje/je_site/nepa/about_nepa.html)

## G-1 Public Involvement

See address: <http://ceq.eh.doe.gov/nepa/regs/scope/scoping.htm>

or

[http://www.hq.nasa.gov/office/codej/codeje/je\\_site/nepa/otherlinks\\_nepa.html](http://www.hq.nasa.gov/office/codej/codeje/je_site/nepa/otherlinks_nepa.html)

## G-2 Environmental Justice Executive Order with Memorandum

See address: <http://nodis.hq.nasa.gov/Library/Directives/NASA-WIDE/nasaeoas/eo12898.html>

and

[http://www.hq.nasa.gov/office/codej/codeje/je\\_site/ej/about\\_ej.html](http://www.hq.nasa.gov/office/codej/codeje/je_site/ej/about_ej.html)

## G-3 Forty Most Often Asked Questions Concerning CEQ's National Environmental Policy Act Regulations

See address: <http://ceq.eh.doe.gov/nepa/regs/40/40P1.htm>

or

[http://www.hq.nasa.gov/office/codej/codeje/je\\_site/nepa/otherlinks\\_nepa.html](http://www.hq.nasa.gov/office/codej/codeje/je_site/nepa/otherlinks_nepa.html)

## G-4 Considering Cumulative Effects Under the National Environmental Policy Act

See address: <http://ceq.eh.doe.gov/nepa/ccenepa/ccenepa.htm>

or

[http://www.hq.nasa.gov/office/codej/codeje/je\\_site/nepa/otherlinks\\_nepa.html](http://www.hq.nasa.gov/office/codej/codeje/je_site/nepa/otherlinks_nepa.html)

## G-5 Environmental Justice Guidance Under the National Environmental Policy Act

See address: <http://ceq.eh.doe.gov/nepa/regs/ej/justice.pdf>

or

[http://www.hq.nasa.gov/office/codej/codeje/je\\_site/ej/about\\_ej.html](http://www.hq.nasa.gov/office/codej/codeje/je_site/ej/about_ej.html)

## G-6 Executive Order 13148, Greening the Government Through Leadership in Environmental Management

See address: [http://www.hq.nasa.gov/office/codej/codeje/je\\_site/ems/about\\_ems.html](http://www.hq.nasa.gov/office/codej/codeje/je_site/ems/about_ems.html)

# APPENDIX H. Federal Statutes, Regulations, and Executive Orders Related to the NEPA Review Process

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## H.1 Introduction

a. Establishing contact with, and soliciting the advice of environmental resource agencies at Federal, State, and local levels is one step in planning and initiating the process of a NEPA review. This appendix identifies specific Federal statutes, regulations and Executive Orders that may apply to alternatives being evaluated for NEPA compliance. These laws or regulations require that proposed agency actions which could affect an environmental standard be coordinated with the responsible organization or agency (State or Federal). The responsible agencies' views on avoidance or mitigation of the effects should be considered by the agency proposing the action.

b. The intent of the summarized Federal statutes, regulations and Executive Orders described below is to help in rapid understanding of the important points of each regulation or statute. This summary does not eliminate the need to become familiar with the actual content itself. Dependent on the alternatives examined during the NEPA process, state regulations may also need to be identified, reviewed and their applicability determined.

## H.2 Water

### H.2.1 Clean Water Act (33 U.S.C. §1251 et seq.)

a. Siting and permitting of wastewater discharges to U.S. surface waters are principally regulated by the Federal Water Pollution Control Act or Clean Water Act (CWA). This Act mandates restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. Siting requirements may have to be considered if the action or alternative would discharge contaminated water to existing surface water bodies. The Federal implementing agency is the U.S. Environmental Protection Agency (U.S. EPA or EPA); each state was intended to have a CWA-authorized agency.

b. The National Pollutant Discharge Elimination System (NPDES) permit program created by the CWA authorizes specific point source discharges and industrial stormwater discharges to waters of the U.S. Section 404 of this Act regulates discharge of fill or dredged material in U.S. waters and wetlands, requiring a permit from the COE.

### H.2.2 Safe Drinking Water Act (42 U.S.C. §300f et seq.)

a. The Safe Drinking Water Act (SDWA), enacted in 1974, established minimum national standards for public water supply systems. The SDWA establishes and enforces national drinking water quality standards and protects underground drinking water sources. Drinking water regulations are promulgated in 40 Code of Federal Regulations (CFR) Parts 141 (National Primary Drinking Water and Standards) and 143 (National Secondary Drinking Water Regulations).

b. Consultation is required if the action or alternative involves construction at or near an area of a designated sole, special or principal drinking water aquifer. Initial consultation occurs with the Regional EPA Office and respective state SDWA-authorized agency and could take 20 to 45 days.

Further consultation could occur with the U.S. Geological Survey. The U.S. Geological Survey is responsible for: topographical and geological mapping of all U.S. lands; identification of water and mineral resources of Federal lands; identification of source, quantity, quality distribution, movement, availability of surface- and ground-waters; and hydrologic studies.

### H.2.3 Executive Order 11990 (Protection of Wetlands)

Executive Order 11990 establishes wetland protection as the official policy of all federal agencies. The order directs that each agency take action "to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands." Work conducted or funded by a federal agency should not call for new construction in wetlands unless there is no practicable alternative and the proposed action includes all practicable measures to minimize damage to wetlands. Agencies are required to provide for early public review of any plans for proposals for new construction in wetlands.

### H.2.4 Executive Order 11988 (Floodplain Management)

Executive Order 11988 requires that Federal Governmental agencies shall minimize to the extent possible, long- and short-term adverse impacts from occupying and modifying floodplains. This Order requires the proposing agency to determine that there are no practicable location alternatives before construction in a floodplain can occur. The Order emphasizes reducing the risk of flood loss and minimizing the impact of floods on human safety, health, and welfare. Mandatory actions must be taken "to restore and preserve the natural and beneficial values served by floodplains" in conducting Federal activities and programs affecting land use. The Order also provides for public review and comment.

### H.2.5 40 CFR 146, Underground Injection Control (UIC) Program

As part of the SDWA, the UIC program, designed to protect underground water sources, provides regulations for the injection of liquids into wells for storage or disposal.

### H.2.6 33 CFR Part 320 (Navigation and Navigable Waters, General Regulatory Policies Pursuant to the Clean Water Act)

The CWA protects waterways and wetlands under 33 CFR Part 320. Permit applications for activities affecting waterways and wetlands are reviewed by the COE, the lead agency for enforcement of wetland requirements, in consultation with the U.S. Fish and Wildlife Service, the Natural Resource Conservation Service, the respective state agency for protection of the environment, and the EPA. A permit would need to be obtained from the COE before implementing action that could disturb wetlands.

## H.3 Air

### H.3.1 Clean Air Act, as amended 1990 (42 U.S.C. 7401 et seq.)

H.3.1.1 Protecting clean air from significant deterioration, the Clean Air Act (CAA), amended in 1990, established the National Ambient Air Quality Standards (NAAQS). These regulations are promulgated in 40 CFR Part 50 (Protection of Environment, National Primary and Secondary Ambient Air Quality Standards). Primary standards specify a level of air quality necessary to protect the public health. Secondary standards specify air quality necessary to protect the public welfare from known or anticipated adverse effects, including effects on economic values, and personal comfort (e.g., protect against damage to soils, crops, wildlife, weather, climate, and personal comfort).

H.3.1.2 NAAQS, implemented by EPA and authorized state agencies, set limits on ambient air concentrations of criteria pollutants: sulfur dioxide, nitrogen dioxide, respirable particulate matter, carbon monoxide, lead, and ozone.

H.3.1.3 Attainment of NAAQS is accomplished through emission limitations. If actual air pollutant concentrations exceed NAAQS, the level of pollution control on emissions sources is to be made more stringent in an effort to bring ambient concentrations to appropriate levels. Areas that are not in compliance with NAAQS are referred to as nonattainment areas. An area may be considered in nonattainment for one or more of the criteria pollutants and as being in attainment for other. Controls to bring these areas into attainment are implemented through State Implementation Plans. The CAA establishes and enforces national air quality standards, and requires Federal action to conform to any state air quality implementation plan approved or promulgated under Section 100 of the Act.

H.3.1.4 The CAA amendments of 1990 include a production phase-out of Class I Ozone Depleting Chemicals, including Chlorofluorocarbons (CFC), halons, carbon tetrachloride and 1,1,1-trichloromethane by December 31, 1995, unless a limited specific waiver is obtained, and hydrochlorofluorocarbons (HCFCs) by schedule of dates ending entirely in 2030. These amendments provide a policy for replacing ozone-depleting chemicals with substitute products or alternative manufacturing processes that reduce overall risks to human health and the environment. Executive Order 12843 (Procurement Requirements and Policies for Federal Agencies for Ozone-Depleting Substances; April 1993) direct federal agencies to the extent possible to comply with CAA requirements regarding stratospheric ozone protection and maximize safe alternatives usage presently and in the future.

H.3.1.5 EPA has set National Emission Standards for Hazardous Air Pollutants (NESHAP) for inorganic arsenic, asbestos, benzene, beryllium, mercury, radionuclides, radon, vinyl chloride, and fugitive emissions. The regulations for NESHAP's are found in 40 CFR Part 61 . (National Emission Standards for Hazardous Air Pollutants); enforcement authority currently rests with EPA. NESHAP's apply to both existing and new stationary sources.

H.3.1.6 The CAA amendments of 1990 designate 189 substances of Hazardous Air Pollutants (HAP). EPA must periodically revise the HAP list and can add pollutants that present or may present a threat of adverse human health or environmental effects.

## **H.4 Flora and Fauna**

H.4.1 Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1544)

H.4.1.1 The Endangered Species Act of 1973 protects proposed and listed threatened and endangered species and critical habitats. The Act requires federal agencies to formally consult with the U.S. Department of Interior, U.S. Fish and Wildlife Service, Department of Commerce, and National Marine Fisheries Service to ensure that actions do not jeopardize listed threatened or endangered terrestrial species or marine species or result in the destruction or adverse modification of designated critical habitat. Rules for consultation by federal agencies are promulgated in 50 CFR Part 402 (Consultation by Federal Agencies). The U.S. Fish and Wildlife maintains current lists of species that have been designated as threatened or endangered.

H.4.1.2 The Act includes flora as well as fauna, prohibits the harm, harassment, trade, or capture of endangered species, and provides for the protection of threatened species. If no previous NEPA documentation exists for the area involved in the alternative, a biological survey and evaluation may be required to determine the potential of the presence of any species listed as endangered or threatened. Initial consultation can take from 30 to 45 days. However, field surveys if required could extend in excess of 1 year to identify seasonal issues.

H.4.1.3 Section 7 of this Act required Federal agencies to ensure that all federally associated activities within the U.S. do not jeopardize the continued existence of threatened or endangered species on designated areas (critical habitats) that are important in conserving those species. The USFWS has established informal and formal consultation procedures and the results of such communications under Section 7 of the Act should be described and documented in the EA/EIS/ERD, as appropriate. If a threatened or endangered species may be affected by the action, a detailed endangered species assessment (Biological Assessment) may be prepared independently or concurrently with the EIS and included as an appendix to the EA/EIS/ERD.

#### H.4.2 Fish and Wildlife Coordination Act of 1965 (16 U.S.C. 661-666c)

The Fish and Wildlife Coordination Act of 1965 ensures that fish and wildlife resources receive equal consideration with other resources during project planning involving water resources larger than 4 ha (10 acres). Consultations are required when a Federal agency plans to conduct an activity involving the impoundment, diversion, deepening, control or modification of a body of water. The Act requires federal agencies to consult with the U.S. Fish and Wildlife Service and appropriate state wildlife agencies to assess impacts on wildlife resources and to modify project plans by justifiable means and measures to prevent loss or damage to those resources.

#### H.4.3 Migratory Bird Treaty Act of 1972 (16 U.S.C. 703-711)

The Migratory Bird Treaty Act of 1972 protects many birds, even some that may not individually migrate, by limiting transportation, importation, killing or possession of these birds.

#### H.4.4 Marine Mammal Protection Act of 1972 (16 U.S.C. 1361 et seq.)

This Act prohibits taking or harassment of any marine mammals except incidental take during commercial fishing, capture under scientific research and public display permits, harvest by Native Americans for subsistence purposes, and any other take authorized on a case basis as set forth in the Act.

## H.5 Land Use

#### H.5.1 Wild and Scenic Rivers Act of 1965 (16 U.S.C. 1271 et seq.), Wilderness Act (16 U.S.C. 1131 et seq.)

The Wild and Scenic Rivers Act of 1965 protects designated rivers and areas from development or affects of construction. The requirements of these acts would have to be considered if construction would impact any designated wilderness area or protected river. Initial consultation would occur with the U.S. Forest Service or Department of the Interior depending on the jurisdiction and could take 30 to 45 days. Related guidance on Wild and Scenic Rivers can be found in CEQ Memoranda at 45 FR 59189. Procedures for the management of lands administered under provisions of this Act can be found at 43 CFR 8351.

#### H.5.2 Coastal Zone Management Act of 1972 (16 U.S.C. 1451 et seq.)

The Act authorizes the National Oceanic and Atmospheric Administration (NOAA) to make grants to States to develop coastal zone management programs. Any Federal action which directly affects a coastal zone must be consistent, to the maximum extent practical, with the approved State coastal zone management program. Initial consultation would occur with the respective State coastal zone management agency and could take 45 to 60 days. Related guidance can be found in 15 CFR 930 [National Oceanic and Atmospheric Administration (NOAA) Regulations on Federal Consistency with Approved Coastal Management Programs].



### H.5.3 Rivers and Harbors Act of 1899 (33 U.S.C. 403 et seq.)

This Act regulates all types of development in or over navigable waters, including bridges, dams, dikes, piers, wharves, booms, jetties, dredging, and filling by requiring COE permits for such actions. Court decisions have expanded protection to estuaries and wetlands.

### H.5.4 Farmland Protection Policy Act (7 U.S.C. 4201 et seq.)

The Farmland Protection Policy Act requires Federal agencies to "minimize the extent to which programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses," and to assure that Federal programs are administered in a manner that, to the extent practicable, will be compatible with State, local government, and private programs and policies to protect farmland. Related guidance can be found in CEQ Memoranda on Prime and Unique Farmlands, 45 FR 59189.

## H.6 Cultural Resources

### H.6.1 National Historic Preservation Act of 1966 (16 U.S.C. 470 et seq.)

The National Historic Preservation Act (NHPA) establishes the National Register of Historic Places (National Register) and requires Federal agencies to consider the effects of their actions on cultural resources that are listed or are eligible for listing in the National Register. To evaluate possible effects of the proposed actions, Section 106 of National Historic Preservation Act requires an agency to identify and evaluate historic properties, assess the effects of the project on the properties, consult with the State Historic Preservation Office (SHPO), and solicit comments from the Advisory Council on Historic Preservation in certain instances. This Act protects those sites in the project area that are listed in or eligible for listing in the National Register. Such listings can include districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, and culture. The SHPO is responsible for providing information on those sites where projects may have an impact. Recent amendments to NHPA emphasize the need to solicit concerns from Native Americans to protect traditional religions and culturally important properties. Regulations pursuant to the National Historic Preservation Act include 36 CFR Part 78 (Waiver of Federal Responsibilities Under Section 110 of the National Historic Preservation Act), and 36 CFR Part 800 (Protection of Historic and Cultural Properties).

### H.6.2 Executive Order 11593 (Protection and Enhancement of the Cultural Environment)

This Executive Order directs all federal land-holding agencies to identify cultural resources, nominate qualifying resources to the National Register, and avoid damaging resources that might be eligible for the National Register. Executive Order 11593 mandated that federal agencies strictly comply with requirements of the National Historic Preservation Act of 1966.

### H.6.3 Archaeological and Historic Preservation Act (16 U.S.C. 469 et seq.)

This Act deals with the preservation of data with respect to the historic properties.

### H.6.4 Archeological Resources Protection Act of 1979 (16 U.S.C. 470aa-470mm)

The Act ensures that protection and preservation of archeological sites on Federal land. It requires that federal permits be obtained before cultural resource investigations begin at sites on federal land.

### H.6.5 American Indian Religious Freedom Act (42 U.S.C. 1996)

This Act states that it is the policy of the United States to protect and preserve for American Indians



their inherent right of freedom to believe, express, and exercise traditional religions. These rights include, but are not limited to, access to traditional sites, use and possession of sacred objects, and the freedom to worship through ceremonial and traditional rites.

#### H.6.6 Native American Graves Protection and Repatriation Act (25 U.S.C. 3001 et seq.)

This Act requires Federal land owners to identify the tribal association of any Native American artifacts or human remains and provide repatriation opportunity.

#### H.6.7 36 CFR 60 (National Register of Historic Places)

A set of criteria for evaluating the significance of resources and their eligibility to the National Register can be found at 36 CFR 60.4.

#### H.6.8 36 CFR 800 (Protection of Historic Properties)

An explicit set of procedures for Federal agencies to meet their obligations and the National Historic Preservation Act and Executive Order 11593 can be found at 36 CFR 800. The regulations define the requirements of the Section 106 process and establish procedures for determining the eligibility of a resource and defining possible effects and adverse effects.

## H.7 Other

#### H.7.1 Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Population)

a. Executive Order 12898, entitled Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Population (FR 1994) directs Federal agencies to incorporate environmental justice as part of their missions. As such, Federal agencies are specifically directed to identify and address as appropriate disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations. Executive Order 12898 requires all Federal agencies to encourage environmental fairness by developing individual agency strategies to prevent disproportionate consequences.

b. Analysis of environmental justice concerns would start with a qualitative assessment of whether there are any technical areas analyzed in the agency action that are more prone to potential environmental inequities if a proposed action is implemented. NOTE: In March 1995, NASA authored its Environmental Justice Strategy. This document established NASA's policy and goals regarding integrating environmental justice issues and concerns into all of its programs, policies, and activities. Each NASA Center or Component Facility is responsible for developing its own Environmental Justice Implementation Plan.

#### H.7.2 Executive Order 12088 (Federal Compliance with Pollution Control Standards)

Executive Order 12088 requires agency leadership to ensure all necessary actions are taken, as amended by EO 12580 CERCLA Implementation for the prevention, control, and abatement of environmental pollution, including noise pollution, with respect to Federal facilities and activities under the control of the agency.

#### H.7.3 Emergency Planning and Community Right-To-Know Act (EPCRA) (42 U.S.C. 11001 et seq.)

EPCRA requires that facilities managing toxic chemicals exceeding the threshold planning quantity report annually on toxic chemical inventories and releases and offsite transfers and prepare and provide upon request an emergency response plan.

#### H.7.4 Oil Pollution Act of 1990 (33 U.S.C. 2701 et seq.)

This act is a comprehensive statute designed to expand oil and gas spill prevention activities, establish new Federal authority to direct responses to oil spills, and improve spill preparedness, and response capabilities.

#### H.7.5 Resource Conservation and Recovery Act (RCRA) (42 U.S.C. 6901 et seq.)

RCRA, implemented by EPA, provides cradle to grave regulation of hazardous waste as defined and listed in 40 CFR 261 (Identification and Listing). Regulations apply to those who generate, transport, treat, store, or dispose of hazardous waste. RCRA regulates underground tank projects. In particular, the Act establishes site selection criteria for hazardous waste disposal facilities.

#### H.7.6 Hazardous Materials Transportation Act (49 U.S.C. 1803 et seq.)

The Hazardous Materials Transportation Act established criteria for shippers and carriers that manage hazardous materials and include training and qualifications of persons handling hazardous materials. This Act requires the responsible party to package, label, mark and/or placard hazardous waste when transporting offsite.

#### H.7.7 Toxic Substances Control Act of 1976 (15 U.S.C. 2601 et seq.)

The Toxic Substances Control Act provides for the control of the manufacture, processing, use, distribution, and disposal of chemical substances which may present a risk to health or the environment. The Act principally regulates Polychlorinated Biphenyls (PCB), radon, lead-based paint in housing, and asbestos-containing materials in schools.

#### H.7.8 Solid Waste Disposal Act and Amendments of 1980 (42 U.S.C. 6901 et seq.)

This Act amends RCRA with additional regulation of energy and materials conservation and establishes a National Advisory Council.

#### H.7.9 Noise Pollution and Abatement Act (42 U.S.C. 7641)

Under this Act, all Federal agencies are required to comply with Federal, State and local requirements respecting control and abatement of environmental noise to the extent that any public citizen is subject to these requirements. Consultation requirements would be dependent on local/State applicability.

#### H.7.10 Executive Order 13148, Greening the Government Through Leadership in Environmental Management

Executive Order 13148 requires Federal agencies to incorporate environmental management systems into agency day-to-day decisionmaking and long term planning processes. Pollution prevention is highlighted as a key aspect to the environmental management system processes. In addition, this EO incorporates the Presidential Memorandum for the Heads of Executive Departments and Agencies on Environmentally and Economically Beneficial Practices on Federal Landscaped Grounds dated August 22, 1994. It promotes the sustainable management of Federal facility lands through implementing cost-effective, environmentally sound landscaping practices, and programs to reduce adverse impacts to the natural environment.

## H.8 Miscellaneous Regulations, Statutes, and Executive Orders

Other potentially relevant regulations, statutes, and Executive Orders are provided below.

- a. Pollution Prevention Act of 1990 (42 U.S.C. 13101 et seq.)
- b. Coastal Barrier Resources Act (16 U.S.C. 3501 et seq.)
- c. National Energy Management Improvement Act of 1988 (P.L. 100-615)
- d. National Energy Conservation Policy Act (42 U.S.C. 8251 et seq.)
- e. Energy Policy Act of 1992 (Pub.L. 102-486)
- f. Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. 9601 et seq.)
- g. Federal Insecticide, Fungicide and Rodenticide Act (7 U.S.C. 136 et seq.)
- h. Bald Eagle Protection Act (16 U.S.C. 668-668a)
- i. Abandoned Shipwreck Act (43 U.S.C. 2101 et seq.)
- j. Executive Order 11514 (amended by Executive Order 11991): Protection and Enhancement of Environmental Quality
- k. Executive Order 12759: Federal Energy Management
- l. Executive Order 12843: Procurement Requirements and Policies for Federal Agencies for Ozone-Depleting Substances
- m. Executive Order 12844: Federal Use of Alternative Fueled Vehicles
- n. Executive Order 12845: Requiring Federal Agencies to Purchase Energy Efficient Computers
- o. Executive Order 12873: Federal Acquisition, Recycling, and Waste Prevention
- p. Executive Order 12902: Energy Efficiency and Water Conservation at Federal Facilities
- q. OMB Circular A-11: Preparation and Submission of Budget Estimates
- r. OMB Circular A-106: Reporting Requirements in Connection with the Prevention, Control, and Abatement of Environmental Pollution at Existing Federal Facilities

# APPENDIX I. Record Of Environmental Consideration And Environmental Evaluation Checklist Examples

Appendix I provides examples of record of considerations REC's and environmental evaluation checklists. With issuance of this NPR, any reference made to NHB 8800.11 is superseded.

## I-1 Record of Environmental Consideration Examples

### RECORD OF ENVIRONMENTAL CONSIDERATION

1. Description and location of proposed action:
2. Anticipated date and/or duration of proposed action:
3. It has been determined that the above action (choose one):
  - a. Is adequately covered in an existing EA, EIS, entitled and dated.
  - b. Qualifies for Categorical Exclusion # 7, paragraph 305 (d) NHB 8800.11 (Table 2.3) NASA NEPA Guidelines, and has no special circumstances which would suggest a need for an Environmental Assessment.
  - c. Is exempt from NEPA requirements under the provisions of (cite superseding law):
  - d. Has no environmental impact as indicated by the results of an Environmental Analysis Checklist and/or a detailed Environmental Analysis. (Attach Checklist and/or Environmental Analysis as applicable.)
  - e. Will require the preparation of an Environmental Assessment.
4. Actions to be coordinated with Code DQH:  
[Lists actions, e.g.: Air permits, if required; Use and disposal of CFCs; Asbestos abatement; Lead paint abatement; Hazardous materials use and storage; PCB handling and disposal; Storm water permits; Confined space entry; Sampling and disposal of contaminated soil and/or groundwater; Chemical use and storm water runoff for sprinkler use; Radiography; Compliance with Migratory Bird Treaty Act; Compliance with NASA's standard for lifting devices and equipment]
5. Actions to be coordinated with Code JFF:  
[List of actions, e.g.: Section 106 Historic Review]

(Environmental Program Manager, DQH)

Date:

[cc's to Project Managers and EMO staff]

### RECORD OF ENVIRONMENTAL CONSIDERATION

#### THIS SECTION TO BE FILLED OUT BY PROJECT MANAGER

1. Description Of Proposed Project And Alternatives (DOPAA).
2. Purpose and need for action.
3. Anticipated date and/or duration of proposed action.
4. Cost of proposed action.

Project total =

SIGNED: \_\_\_\_\_ Org. Code \_\_\_\_\_  
Project Manager

## NEPA

### RECORD OF ENVIRONMENTAL CONSIDERATION (REC)

#### **PROJECT:**

THE FOLLOWING WILL BE COMPLETED BY THE OEP

5. It has been determined that the above action:

- a. Is adequately covered in an existing EAEIS entitled and dated .
- b. Qualifies for categorical exclusion # , 14 CFR 1216.305, and has no special circumstances which would suggest  
a need for an environmental assessment.
- c. Is exempt from NEPA requirements under the provisions of.
- d. Has no environmental impact as indicated by the results of an Environmental Analysis Checklist and/or a detailed Environmental Analysis. (Attach Checklist or Environmental Analysis as applicable).
- e. Will require an Environmental Assessment.
- f. Will require an Environmental Impact Statement.
- g. Will include mitigation, as described:

SIGNED:

DATE:

(Chief, Office of Environmental Programs)

This project has been assigned to \_\_\_\_\_, at extension, as the contact person within the Office of Environmental Programs.

#### **NE0001 ENVIRONMENTAL RECORD OF CONSIDERATION PROJECT:**

##### **Purpose:**

##### **Evaluation:**

##### **Special Considerations:**

**Determination:** This action is categorically exempt from further environmental assessment based on the information provided in the project description. If there are changes to the siting or other aspects of the project then this document is invalidated and the action will be reassessed.

\_\_\_\_\_  
**Project Officer**

\_\_\_\_\_  
**CONCUR  
NONCONCUR**

\_\_\_\_\_  
**DATE:**

\_\_\_\_\_  
**Environmental Coordinator**

\_\_\_\_\_  
**CONCUR  
NONCONCUR**

\_\_\_\_\_  
**DATE:**

#### **I-2 Environmental Evaluation Checklist Examples NEPA Environmental Checklist (R&D Projects)**

<b>Project Name:</b>		<b>Date of Selection:</b>	
<b>Project Contact:</b>		<b>Project Start Date:</b>	

<b>Building Number and Location:</b>	<b>Telephone Number:</b>
<b>Description of Project:</b>	

**Environmental Impacts:**

"Yes" responses may require the project to prepare an Environmental Assessment or conduct additional studies.

<b>A. Geologic:</b>		<b>Yes</b>	<b>Maybe</b>	<b>No</b>
<input type="checkbox"/>	a. Greater than 10 % change in topography or ground surface relief features?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	b. Any increase in wind or water erosion of soils, either on or off site?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	c. Changes in deposition, siltation, or erosion that may modify the wetlands or bay?...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Explain all "yes" and "maybe" answers:				
<b>B. Air:</b>		<b>Yes</b>	<b>Maybe</b>	<b>No</b>
<input type="checkbox"/>	a. Substantial air emissions or deterioration of ambient air quality?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	b. The creation of objectionable odors?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	c. Alteration of air movement, moisture, temperature, or any changes in climate, either locally or regionally?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Explain all "yes" and "maybe" answers:				
<b>C. Water:</b>		<b>Yes</b>	<b>Maybe</b>	<b>No</b>
<input type="checkbox"/>	a. Disturbance of groundwater?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	b. Greater than 10% changes in absorption rates, drainage patterns, or the rate and amount of surface runoff?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	c. Alter the course or flow of flood waters?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	d. Alteration of the direction or rate of ground waters?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	e. Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	f. Activities resulting in changes of greater than 10 percent of Center total potable water use (more than 35,100,000 gallons/year)?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	g. Any construction or other activity in a floodplain or wetland?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Explain all "yes" and "maybe" answers:				
<b>D. Cultural Resources:</b>		<b>Yes</b>	<b>Maybe</b>	<b>No</b>
<input type="checkbox"/>	a. Is the project located in an historic district or effects an existing landmark?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	b. Will the project alter a building that is 50 years or older?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	c. Is the project located in an area of suspected archaeological resources?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Explain all "yes" and "maybe" answers:				
<b>E. Biological Resources:</b>		<b>Yes</b>	<b>Maybe</b>	<b>No</b>
<input type="checkbox"/>	a. Construction/grading/filling within or adjacent to designated wetlands?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	b. Reduction of the numbers of any rare, or endangered species?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<input type="checkbox"/>	c.	Construction/grading/filling within open space or grasslands areas?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	d.	Introduction of new species or plants into an area, or impacts the normal replenishment of existing species?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	e.	Proposed construction activities in burrowing owl habitat?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	f.	Propose new landscaping or modify existing landscaping?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<input type="checkbox"/>	Explain all "yes" and "maybe" answers:	
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<b>F.</b>	<b>Noise:</b>	<b>Yes</b>	<b>Maybe</b>	<b>No</b>
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<input type="checkbox"/>	a.	A noise increase greater than 10% from an existing operation?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	b.	Exposure of people to severe noise levels (above 80 dBA)?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	c.	Increase existing CNEL noise contours surrounding the airfield or Ames?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<input type="checkbox"/>	Explain all "yes" and "maybe" answers:	
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<b>G.</b>	<b>Land Use:</b>	<b>Yes</b>	<b>Maybe</b>	<b>No</b>
-----------	------------------	------------	--------------	-----------

<input type="checkbox"/>	a.	Substantial alteration of the present or planned land use?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	b.	Increase in the rate of use of any natural resource?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	c.	Activities resulting in changes of greater than 10 percent of Center energy consumption (15,000,000 kWh of office electricity, 15,000,000 kWh wind tunnel electricity, or 382,000 therms of natural gas)?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	d.	Activities resulting in a change in total employment levels greater than 10 percent (More than 620 people)?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<input type="checkbox"/>	Explain all "yes" and "maybe" answers:	
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<b>H.</b>	<b>Health and Safety:</b>	<b>Yes</b>	<b>Maybe</b>	<b>No</b>
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<input type="checkbox"/>	a.	Generation of ionizing or nonionizing radiation?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	b.	Generate any air emissions?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	c.	Use of pesticides, including insecticides, herbicides, fungicides or rodenticides?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	d.	Confined space entry?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	e.	Risk of exposure to asbestos or lead containing materials?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	f.	Result in the exposure or disturbance of contaminated soil or ground water?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	g.	Generate industrial waste water or storm water discharge?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	h.	Use of Class I ozone depleting substances (CFCs, TCA, halons)?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	i.	Acquisition, use, or storage of any toxic or hazardous substance?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	j.	Generation of medical (biohazard), hazardous, toxic, or radiological wastes?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	k.	Use, disturbance or disposal of PCBs?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	l.	Use of toxic gas?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<input type="checkbox"/>	Explain all "yes" and "maybe" answers:	
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<b>I.</b>	<b>Transportation/Circulation:</b>	<b>Yes</b>	<b>Maybe</b>	<b>No</b>
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<input type="checkbox"/>	a.	Generation of substantial vehicle trips (over 620 per day)?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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<input type="checkbox"/>	b.	Affect existing parking facilities or demand for new parking?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	c.	Substantial impact upon existing transportation systems?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	d.	Increase in traffic hazards to motor vehicles, bicyclists, or pedestrians?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>					
<input type="checkbox"/>	Explain all "yes" and "maybe" answers:		<input type="text"/>		
<hr/>					
<b>J. Services:</b>			<b>Yes</b>	<b>Maybe</b>	<b>No</b>
<input type="checkbox"/>	a.	Affect or result in need for new or altered government-provided fire protection services?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	b.	Affect or result in need for new or altered government-provided security services?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>					
<input type="checkbox"/>	Explain all "yes" and "maybe" answers:		<input type="text"/>		
<hr/>					
<b>K. Environmental Justice:</b>			<b>Yes</b>	<b>Maybe</b>	<b>No</b>
<input type="checkbox"/>	a.	Does the project have the potential to disproportionately affect low income populations or minority populations?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>					
<input type="checkbox"/>	Explain all "yes" and "maybe" answers:		<input type="text"/>		
<hr/>					

**NEPA Environmental Checklist (Facilities Projects)**

<b>Project Name:</b>	<input type="text"/>	<b>Current Date:</b>	<input type="text"/>
<b>Project Contact:</b>	<input type="text"/>	<b>Project Start Date:</b>	<input type="text"/>
<b>Building Number and Location:</b>		<b>Telephone Number:</b>	
<b>Description of Project:</b>		<input type="text"/>	

**Environmental Impacts:**

"Yes" responses may require the project to prepare an Environmental Assessment or conduct additional studies.

<b>A. Geologic:</b>		<b>Yes</b>	<b>Maybe</b>	<b>No</b>	
<input type="checkbox"/>	a.	Greater than 10 % change in topography or ground surface relief features?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	b.	Any increase in wind or water erosion of soils, either on or off site?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	c.	Changes in deposition, siltation, or erosion that may modify the wetlands or bay?...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>					
<input type="checkbox"/>	Explain all "yes" and "maybe" answers:		<input type="text"/>		
<hr/>					
<b>B. Air:</b>		<b>Yes</b>	<b>Maybe</b>	<b>No</b>	
<input type="checkbox"/>	a.	Substantial air emissions or deterioration of ambient air quality?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	b.	The creation of objectionable odors?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	c.	Alteration of air movement, moisture, temperature, or any changes in climate, either locally or regionally?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>					
<input type="checkbox"/>	Explain all "yes" and "maybe" answers:		<input type="text"/>		
<hr/>					
<b>C. Water:</b>		<b>Yes</b>	<b>Maybe</b>	<b>No</b>	
<input type="checkbox"/>	a.	Disturbance of groundwater?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<input type="checkbox"/>	b.	Greater than 10% changes in absorption rates, drainage patterns, or the rate and amount of surface runoff?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	c.	Alter the course or flow of flood waters?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	d.	Alteration of the direction or rate of ground waters?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	e.	Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	f.	Activities resulting in changes of greater than 10 percent of Center total potable water use (more than 35,100,000 gallons/year)?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	g.	Any construction or other activity in a floodplain or wetland?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<input type="checkbox"/>	Explain all "yes" and "maybe" answers:	
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**D. Cultural Resources:** ☐ **Yes** ☐ **Maybe** ☐ **No**

<input type="checkbox"/>	a.	Is the project located in an historic district or effects an existing landmark?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	b.	Will the project alter a building that is 50 years or older?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	c.	Is the project located in an area of suspected archaeological resources?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<input type="checkbox"/>	Explain all "yes" and "maybe" answers:	
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**E. Biological Resources:** ☐ **Yes** ☐ **Maybe** ☐ **No**

<input type="checkbox"/>	a.	Construction/grading/filling within or adjacent to designated wetlands?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	b.	Reduction of the numbers of any rare, or endangered species?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	c.	Construction/grading/filling within open space or grasslands areas?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	d.	Introduction of new species or plants into an area, or impacts the normal replenishment of existing species?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	e.	Proposed construction activities in burrowing owl habitat?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	f.	Propose new landscaping or modify existing landscaping?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<input type="checkbox"/>	Explain all "yes" and "maybe" answers:	
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**F. Noise:** ☐ **Yes** ☐ **Maybe** ☐ **No**

<input type="checkbox"/>	a.	A noise increase greater than 10% from an existing operation?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	b.	Exposure of people to severe noise levels (above 80 dBA)?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	c.	Increase existing CNEL noise contours surrounding the airfield or Ames?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<input type="checkbox"/>	Explain all "yes" and "maybe" answers:	
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**G. Land Use:** ☐ **Yes** ☐ **Maybe** ☐ **No**

<input type="checkbox"/>	a.	Substantial alteration of the present or planned land use?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	b.	Increase in the rate of use of any natural resource?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	c.	Activities resulting in changes of greater than 10 percent of Center energy consumption (15,000,000 kWh of office electricity, 15,000,000 kWh wind tunnel electricity, or 382,000 therms of natural gas)?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<input type="checkbox"/>	d.	Activities resulting in a change in total employment levels greater than 10 percent (More than 620 people)?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>					
<input type="checkbox"/>	Explain all "yes" and "maybe" answers:				
<hr/>					
<b>H. Health and Safety:</b>			<b>Yes</b>	<b>Maybe</b>	<b>No</b>
<input type="checkbox"/>	a.	Generation of ionizing or nonionizing radiation?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	b.	Generate any air emissions?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	c.	Use of pesticides, including insecticides, herbicides, fungicides or rodenticides?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	d.	Confined space entry?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	e.	Risk of exposure to asbestos or lead containing materials?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	f.	Result in the exposure or disturbance of contaminated soil or ground water?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	g.	Generate industrial waste water or storm water discharge?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	h.	Use of Class I ozone depleting substances (CFCs, TCA, halons)?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	i.	Acquisition, use, or storage of any toxic or hazardous substance?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	j.	Generation of medical (biohazard), hazardous, toxic, or radiological wastes?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	k.	Use, disturbance or disposal of PCBs?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	l.	Use of toxic gas?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>					
<input type="checkbox"/>	Explain all "yes" and "maybe" answers:				
<hr/>					
<b>I. Transportation/Circulation:</b>			<b>Yes</b>	<b>Maybe</b>	<b>No</b>
<input type="checkbox"/>	a.	Generation of substantial vehicle trips (over 620 per day)?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	b.	Affect existing parking facilities or demand for new parking?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	c.	Substantial impact upon existing transportation systems?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	d.	Increase in traffic hazards to motor vehicles, bicyclists, or pedestrians?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>					
<input type="checkbox"/>	Explain all "yes" and "maybe" answers:				
<hr/>					
<b>J. Services:</b>			<b>Yes</b>	<b>Maybe</b>	<b>No</b>
<input type="checkbox"/>	a.	Affect or result in need for new or altered government-provided fire protection services?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	b.	Affect or result in need for new or altered government-provided security services?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>					
<input type="checkbox"/>	Explain all "yes" and "maybe" answers:				
<hr/>					
<b>K. Environmental Justice:</b>			<b>Yes</b>	<b>Maybe</b>	<b>No</b>
<input type="checkbox"/>	a.	Does the project have the potential to disproportionately affect low income populations or minority populations?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>					
<input type="checkbox"/>	Explain all "yes" and "maybe" answers:				
<hr/>					

# **JET PROPULSION LABORATORY** **ENVIRONMENTAL COMPLIANCE ANALYSIS** (for EAO use only)

ID NUMBER:  
(for EAO use only)

TYPE OF PROPOSED ACTION:

- FINAL STATUS: - No further assessment required  
- Conditionally exempt  
- Environmental Impact Study Required

Instructions     Indicate the effect on each appropriate attribute listed below.  
Additional attribute may be listed in the other sections.

"+" = positive effect  
"o" = no effect  
"-" = adverse effect  
"u" = effect unknown

<b>EARTH</b>	+	o	-	u
Erosion (wind/water)				
Surface stability				
Agricultural lands				
<b>WATER</b>	+	o	-	u
Aquatic life				
Flow variation				
Aquifer yield				
Aesthetic properties and potential use of water				
Natural streams				
Chemical quality (wastewater, stormwater, run-off) (pH, DS, heavy metals, organics, etc.)				
Physical quality (wastewater, stormwater, run-off) (ss, oil, temp)				
Odors				
Toxic substances				
Particulates				
Air movement				
Permitting				
Other (SO <sub>x</sub> , NO <sub>x</sub> , CO, hydrocarbons, photochemical oxidants)				
<b>BIOTICS</b>	+	o	-	u
Undisturbed natural areas				
Game animals and fish				
Threatened and endangered species				
Species balance				
<b>RESOURCES</b>	+	o	-	u
Fuel resource, consumption/conservation				
Water consumption/conservation				
Energy consumption/conservation				
<b>RADIATION</b>	+	o	-	u
Ionizing radiation				
Electromagnetic				
Ultraviolet				
Lasers				
<b>ACTIVITY/SYSTEMS</b>	+	o	-	u
Transportation/supply/demand				
Sewer sanitary				

Wastewater permitting (EPA categorical)				
Storm drainage (NPDES permitting)				
<b>LAND USE</b>	<b>+</b>	<b>o</b>	<b>-</b>	<b>u</b>
Flood plain/wetlands				
Off-Lab land use				
On-Lab land use				
History/archeological areas				
Aesthetics				
Access to Minerals				
<b>SOCIO-ECONOMICS</b>	<b>+</b>	<b>o</b>	<b>-</b>	<b>u</b>
Population				
Housing supply/demand				
Employment				
Commercial activities				
Industrial activities				
Cultural patterns				
Historic landmarks				
<b>NOISE</b>	<b>+</b>	<b>o</b>	<b>-</b>	<b>u</b>
On-Lab levels				
Off-Lab levels				
<b>OTHER</b>	<b>+</b>	<b>o</b>	<b>-</b>	<b>u</b>
Health & Safety				
Potential Wild Fire Hazard				

**REMARKS:**

Name of EAO Environmental Engineer \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

Refer to: 95-038.FRC (rev 1/96)

**NEPA Environmental Checklist**

<b>Project Name:</b>		<b>Current Date:</b>	
<b>Project Contact:</b>		<b>Project Start Date:</b>	
<b>Building Number and Location:</b>	<b>Telephone Number:</b>		
<b>Description of Project:</b>			

**Environmental Impacts:**

"Yes" responses may require the project to prepare an Environmental Assessment or conduct additional studies.

<b>A. Geologic:</b>	<b>Yes</b>	<b>Maybe</b>	<b>No</b>
<input type="checkbox"/> a.	Greater than 10 % change in topography or ground surface relief features?.....	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> b.	Any increase in wind or water erosion of soils, either on or off site?.....	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> c.	Changes in deposition, siltation, or erosion that may modify the wetlands or bay?...	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Explain all "yes" and "maybe" answers:		
<b>B. Air:</b>	<b>Yes</b>	<b>Maybe</b>	<b>No</b>
<input type="checkbox"/> a.	Substantial air emissions or deterioration of ambient air quality?.....	<input type="checkbox"/>	<input type="checkbox"/>

<input type="checkbox"/>	b.	The creation of objectionable odors?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	c.	Alteration of air movement, moisture, temperature, or any changes in climate, either locally or regionally?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>					
<input type="checkbox"/>	Explain all "yes" and "maybe" answers:		<input type="text"/>		
<hr/>					
<b>C. Water:</b>			<b>Yes</b>	<b>Maybe</b>	<b>No</b>
<input type="checkbox"/>	a.	Disturbance of groundwater?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	b.	Greater than 10% changes in absorption rates, drainage patterns, or the rate and amount of surface runoff?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	c.	Alter the course or flow of flood waters?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	d.	Alteration of the direction or rate of ground waters?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	e.	Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	f.	Activities resulting in changes of greater than 10 percent of Center total potable water use (more than 35,100,000 gallons/year)?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	g.	Any construction or other activity in a floodplain or wetland?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>					
<input type="checkbox"/>	Explain all "yes" and "maybe" answers:		<input type="text"/>		
<hr/>					
<b>D. Cultural Resources:</b>			<b>Yes</b>	<b>Maybe</b>	<b>No</b>
<input type="checkbox"/>	a.	Is the project located in an historic district or effects an existing landmark?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	b.	Will the project alter a building that is 50 years or older?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	c.	Is the project located in an area of suspected archaeological resources?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>					
<input type="checkbox"/>	Explain all "yes" and "maybe" answers:		<input type="text"/>		
<hr/>					
<b>E. Biological Resources:</b>			<b>Yes</b>	<b>Maybe</b>	<b>No</b>
<input type="checkbox"/>	a.	Construction/grading/filling within or adjacent to designated wetlands?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	b.	Reduction of the numbers of any rare, or endangered species?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	c.	Construction/grading/filling within open space or grasslands areas?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	d.	Introduction of new species or plants into an area, or impacts the normal replenishment of existing species?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	e.	Proposed construction activities in burrowing owl habitat?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	f.	Propose new landscaping or modify existing landscaping?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>					
<input type="checkbox"/>	Explain all "yes" and "maybe" answers:		<input type="text"/>		
<hr/>					
<b>F. Noise:</b>			<b>Yes</b>	<b>Maybe</b>	<b>No</b>
<input type="checkbox"/>	a.	A noise increase greater than 10% from an existing operation?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	b.	Exposure of people to severe noise levels (above 80 dBA)?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	c.	Increase existing CNEL noise contours surrounding the airfield or Ames?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>					
<input type="checkbox"/>	Explain all "yes" and "maybe" answers:		<input type="text"/>		
<hr/>					

<b>G. Land Use:</b>		<b>Yes</b>	<b>Maybe</b>	<b>No</b>
<input type="checkbox"/>	a.	Substantial alteration of the present or planned land use?.....		<input type="checkbox"/>
<input type="checkbox"/>	b.	Increase in the rate of use of any natural resource?.....		<input type="checkbox"/>
<input type="checkbox"/>	c.	Activities resulting in changes of greater than 10 percent of Center energy consumption (15,000,000 kWh of office electricity, 15,000,000 kWh wind tunnel electricity, or 382,000 therms of natural gas)?.....		<input type="checkbox"/>
<input type="checkbox"/>	d.	Activities resulting in a change in total employment levels greater than 10 percent (More than 620 people)?.....		<input type="checkbox"/>
<input type="checkbox"/> Explain all "yes" and "maybe" answers: <input type="text"/>				
<hr/>				
<b>H. Health and Safety:</b>		<b>Yes</b>	<b>Maybe</b>	<b>No</b>
<input type="checkbox"/>	a.	Generation of ionizing or nonionizing radiation?.....		<input type="checkbox"/>
<input type="checkbox"/>	b.	Generate any air emissions?.....		<input type="checkbox"/>
<input type="checkbox"/>	c.	Use of pesticides, including insecticides, herbicides, fungicides or rodenticides?.....		<input type="checkbox"/>
<input type="checkbox"/>	d.	Confined space entry?.....		<input type="checkbox"/>
<input type="checkbox"/>	e.	Risk of exposure to asbestos or lead containing materials?.....		<input type="checkbox"/>
<input type="checkbox"/>	f.	Result in the exposure or disturbance of contaminated soil or ground water?.....		<input type="checkbox"/>
<input type="checkbox"/>	g.	Generate industrial waste water or storm water discharge?.....		<input type="checkbox"/>
<input type="checkbox"/>	h.	Use of Class I ozone depleting substances (CFCs, TCA, halons)?.....		<input type="checkbox"/>
<input type="checkbox"/>	i.	Acquisition, use, or storage of any toxic or hazardous substance?.....		<input type="checkbox"/>
<input type="checkbox"/>	j.	Generation of medical (biohazard), hazardous, toxic, or radiological wastes?.....		<input type="checkbox"/>
<input type="checkbox"/>	k.	Use, disturbance or disposal of PCBs?.....		<input type="checkbox"/>
<input type="checkbox"/> Explain all "yes" and "maybe" answers: <input type="text"/>				
<hr/>				
<b>I. Transportation/Circulation:</b>		<b>Yes</b>	<b>Maybe</b>	<b>No</b>
<input type="checkbox"/>	a.	Generation of substantial vehicle trips (over 620 per day)?.....		<input type="checkbox"/>
<input type="checkbox"/>	b.	Affect existing parking facilities or demand for new parking?.....		<input type="checkbox"/>
<input type="checkbox"/>	c.	Substantial impact upon existing transportation systems?.....		<input type="checkbox"/>
<input type="checkbox"/>	d.	Increase in traffic hazards to motor vehicles, bicyclists, or pedestrians?.....		<input type="checkbox"/>
<input type="checkbox"/> Explain all "yes" and "maybe" answers: <input type="text"/>				
<hr/>				
<b>J. Services:</b>		<b>Yes</b>	<b>Maybe</b>	<b>No</b>
<input type="checkbox"/>	a.	Affect or result in need for new or altered government-provided fire protection services?.....		<input type="checkbox"/>
<input type="checkbox"/>	b.	Affect or result in need for new or altered government-provided security services?.....		<input type="checkbox"/>
<input type="checkbox"/> Explain all "yes" and "maybe" answers: <input type="text"/>				
<hr/>				
<b>K. Environmental Justice:</b>		<b>Yes</b>	<b>Maybe</b>	<b>No</b>



<input type="checkbox"/>	a.	Does the project have the potential to disproportionately affect low income populations or minority populations?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>					
<input type="checkbox"/>	Explain all "yes" and "maybe" answers:				
<hr/>					
<hr/>					

**Engineering Design - Environmental Checklist for 8/93  
New Projects, Maintenance, Repair or Renovation Activities**

Project: \_\_\_\_\_

Project Location: \_\_\_\_\_

Project Description: \_\_\_\_\_

Point of Contact: \_\_\_\_\_

Phone: \_\_\_\_\_ Date: \_\_\_\_\_

Code: \_\_\_\_\_ Mailstop: \_\_\_\_\_

**For any new construction, modification, renovation, repair, equipment change-out, and/or maintenance activity, please complete the following checklist to determine if a negative environmental impact exists. If any response is a yes or maybe, please contact the Safety, Health & Environmental Quality Office (ext. 2306) for assistance.**

- |   |   |  |  |   |   |                 |                 |              |          |           |           |                |                   |             |                 |                      |                  |                      |                 |                  |                 |                  |               |                   |                    |  |  |  |
|---|---|--|--|---|---|-----------------|-----------------|--------------|----------|-----------|-----------|----------------|-------------------|-------------|-----------------|----------------------|------------------|----------------------|-----------------|------------------|-----------------|------------------|---------------|-------------------|--------------------|--|--|--|
| 1.  | Will the construction, installation, activation, change-out, or operation of the proposed project require the use of any chemicals?   | YES  | NO   | MAYBE   |   |                 |                 |              |          |           |           |                |                   |             |                 |                      |                  |                      |                 |                  |                 |                  |               |                   |                    |  |  |  |
| 2.  | Will any chemical or substance (other than clean air) be vented or discharged into the atmosphere, soil, stormwater system, sewer system or groundwater resources?  | YES  | NO   | MAYBE   |   |                 |                 |              |          |           |           |                |                   |             |                 |                      |                  |                      |                 |                  |                 |                  |               |                   |                    |  |  |  |
| 3.  | Will the project involve installation, alteration, modification or maintenance of any of the following: (circle all that apply)   | YES  | NO   | MAYBE   |   |                 |                 |              |          |           |           |                |                   |             |                 |                      |                  |                      |                 |                  |                 |                  |               |                   |                    |  |  |  |
|   | <table border="0"> <tr> <td>a. fume hoods</td> <td>b. industrial ovens</td> <td>c. steam generators</td> </tr> <tr> <td>d. boilers</td> <td>e. exhaust fans</td> <td>f. HVAC systems</td> </tr> <tr> <td>g. scrubbers</td> <td>h. vents</td> <td>i. drains</td> </tr> <tr> <td>j. piping</td> <td>k. compressors</td> <td>l. cooling towers</td> </tr> <tr> <td>m. chillers</td> <td>n. paint booths</td> <td>o. diesel generators</td> </tr> <tr> <td>p. AGE equipment</td> <td>q. abrasive blasters</td> <td>r. spray booths</td> </tr> <tr> <td>s. plasma booths</td> <td>t. incinerators</td> <td>u. battery rooms</td> </tr> <tr> <td>v. degreasers</td> <td>w. chemical baths</td> <td>x. other (specify)</td> </tr> </table> | a. fume hoods  | b. industrial ovens                                      | c. steam generators   | d. boilers  | e. exhaust fans | f. HVAC systems | g. scrubbers | h. vents | i. drains | j. piping | k. compressors | l. cooling towers | m. chillers | n. paint booths | o. diesel generators | p. AGE equipment | q. abrasive blasters | r. spray booths | s. plasma booths | t. incinerators | u. battery rooms | v. degreasers | w. chemical baths | x. other (specify) |  |  |  |
| a. fume hoods   | b. industrial ovens   | c. steam generators                                  |  |   |   |                 |                 |              |          |           |           |                |                   |             |                 |                      |                  |                      |                 |                  |                 |                  |               |                   |                    |  |  |  |
| d. boilers  | e. exhaust fans   | f. HVAC systems                                      |  |   |   |                 |                 |              |          |           |           |                |                   |             |                 |                      |                  |                      |                 |                  |                 |                  |               |                   |                    |  |  |  |
| g. scrubbers  | h. vents  | i. drains  |  |   |   |                 |                 |              |          |           |           |                |                   |             |                 |                      |                  |                      |                 |                  |                 |                  |               |                   |                    |  |  |  |
| j. piping   | k. compressors  | l. cooling towers                                    |  |   |   |                 |                 |              |          |           |           |                |                   |             |                 |                      |                  |                      |                 |                  |                 |                  |               |                   |                    |  |  |  |
| m. chillers   | n. paint booths   | o. diesel generators                                 |  |   |   |                 |                 |              |          |           |           |                |                   |             |                 |                      |                  |                      |                 |                  |                 |                  |               |                   |                    |  |  |  |
| p. AGE equipment  | q. abrasive blasters  | r. spray booths                                      |  |   |   |                 |                 |              |          |           |           |                |                   |             |                 |                      |                  |                      |                 |                  |                 |                  |               |                   |                    |  |  |  |
| s. plasma booths  | t. incinerators   | u. battery rooms                                     |  |   |   |                 |                 |              |          |           |           |                |                   |             |                 |                      |                  |                      |                 |                  |                 |                  |               |                   |                    |  |  |  |
| v. degreasers   | w. chemical baths   | x. other (specify)                                   |  |   |   |                 |                 |              |          |           |           |                |                   |             |                 |                      |                  |                      |                 |                  |                 |                  |               |                   |                    |  |  |  |
| 4.  | Will the project require an environmental permit? (circle all that apply)   | YES  | NO   | MAYBE   |   |                 |                 |              |          |           |           |                |                   |             |                 |                      |                  |                      |                 |                  |                 |                  |               |                   |                    |  |  |  |
|   | <table border="0"> <tr> <td>a. Kern County (Desert) Air Pollution Control Permit</td> </tr> <tr> <td>b. Lahontan - Regional Water Quality Control Board Order</td> </tr> <tr> <td>c. National Pollution Discharge Elimination System (NPDES) Permit</td> </tr> <tr> <td>d. Department of Toxic Substances - TSD Permit or RCRA Manifest</td> </tr> </table>   | a. Kern County (Desert) Air Pollution Control Permit | b. Lahontan - Regional Water Quality Control Board Order | c. National Pollution Discharge Elimination System (NPDES) Permit | d. Department of Toxic Substances - TSD Permit or RCRA Manifest |                 |                 |              |          |           |           |                |                   |             |                 |                      |                  |                      |                 |                  |                 |                  |               |                   |                    |  |  |  |
| a. Kern County (Desert) Air Pollution Control Permit              |   |  |  |   |   |                 |                 |              |          |           |           |                |                   |             |                 |                      |                  |                      |                 |                  |                 |                  |               |                   |                    |  |  |  |
| b. Lahontan - Regional Water Quality Control Board Order          |   |  |  |   |   |                 |                 |              |          |           |           |                |                   |             |                 |                      |                  |                      |                 |                  |                 |                  |               |                   |                    |  |  |  |
| c. National Pollution Discharge Elimination System (NPDES) Permit |   |  |  |   |   |                 |                 |              |          |           |           |                |                   |             |                 |                      |                  |                      |                 |                  |                 |                  |               |                   |                    |  |  |  |
| d. Department of Toxic Substances - TSD Permit or RCRA Manifest   |   |  |  |   |   |                 |                 |              |          |           |           |                |                   |             |                 |                      |                  |                      |                 |                  |                 |                  |               |                   |                    |  |  |  |
| 5.  | Will this project involve surface preparation, paint removal or sandblasting of a facility or a large piece of equipment?   | YES  | NO   | MAYBE   |   |                 |                 |              |          |           |           |                |                   |             |                 |                      |                  |                      |                 |                  |                 |                  |               |                   |                    |  |  |  |
| 6.  | Will the project produce new or increase the volume of industrial sanitary wastewater?  | YES  | NO   | MAYBE   |   |                 |                 |              |          |           |           |                |                   |             |                 |                      |                  |                      |                 |                  |                 |                  |               |                   |                    |  |  |  |
| 7.  | Will the project produce new or increase the volume of stormwater runoff? Consider parking lots, aircraft aprons and paved surfaces.  | YES  | NO   | MAYBE   |   |                 |                 |              |          |           |           |                |                   |             |                 |                      |                  |                      |                 |                  |                 |                  |               |                   |                    |  |  |  |

- |     |   |     |    |       |
|-----|---|-----|----|-------|
| 8.  | Will the project involve the construction of a new facility or new utilities?   | YES | NO | MAYBE |
|     |   |     |    |       |
| 9.  | Will the project involve installation, alteration, renovation, modification or maintenance of any of the following: (circle all that apply)   | YES | NO | MAYBE |
|     | <div style="display: flex; flex-wrap: wrap;"> <div style="width: 33%;">a. dikes</div> <div style="width: 33%;">b. impoundments</div> <div style="width: 33%;">c. drainage ditches</div> <div style="width: 33%;">d. septic tanks</div> <div style="width: 33%;">e. sewer lines</div> <div style="width: 33%;">f. sewer connections</div> <div style="width: 33%;">g. culverts</div> <div style="width: 33%;">h. water lines</div> <div style="width: 33%;">i. above ground tanks</div> <div style="width: 33%;">j. wells</div> <div style="width: 33%;">k. ponds</div> <div style="width: 33%;">l. underground tanks</div> <div style="width: 33%;">m. comm lines</div> <div style="width: 33%;">n. sumps</div> <div style="width: 33%;">o. french drains</div> <div style="width: 33%;">p. electrical lines</div> <div style="width: 33%;">q. separators</div> <div style="width: 33%;">r. storm drains</div> <div style="width: 33%;">s. seepage pits</div> <div style="width: 33%;">t. channels</div> <div style="width: 33%;">u. other (specify)</div> </div> |     |    |       |
|     |   |     |    |       |
| 10. | Will the project require the use of groundwater supplies?   | YES | NO | MAYBE |
|     |   |     |    |       |
| 11. | Will the project require removal of vegetation, land clearing, land grading, filling, or excavation?  | YES | NO | MAYBE |
|     |   |     |    |       |
| 12. | Will there be any construction or other activities in a floodplain or wetland area?   | YES | NO | MAYBE |
|     |   |     |    |       |
| 13. | Will the project require use or generation of any radiation (ionizing or non-ionizing) source?  | YES | NO | MAYBE |
|     |   |     |    |       |
| 14. | Will the project require acquisition, use, generation, storage, or disposal of any hazardous or toxic materials or chemicals?   | YES | NO | MAYBE |
|     |   |     |    |       |
| 15. | Will the project generate high noise levels (above 80 dBA)?   | YES | NO | MAYBE |
|     |   |     |    |       |
| 16. | Will the project affect areas within or around significant historical or archaeological sites?  | YES | NO | MAYBE |
|     |   |     |    |       |
| 17. | Will the project affect sensitive wildlife habitat ?  | YES | NO | MAYBE |
|     |   |     |    |       |
| 18. | Will there be any action which could or will affect any threatened or endangered species?   | YES | NO | MAYBE |
|     |   |     |    |       |
| 19. | Will the project require use of pesticides, including insecticides, herbicides, fungicides and rodenticides?  | YES | NO | MAYBE |
|     |   |     |    |       |
| 20. | Will the project requires removal of asbestos or PCB materials?   | YES | NO | MAYBE |
|     |   |     |    |       |
| 21. | Will the project generate hazardous, toxic or radiological waste?   | YES | NO | MAYBE |
|     |   |     |    |       |
| 22. | Is the project located on or near a Superfund Site?   | YES | NO | MAYBE |
|     |   |     |    |       |
| 23. | Will the project require installation or modification of fire protection or fire detection systems?   | YES | NO | MAYBE |

24.	Will the project have other issues which may pose an environmental impact?	YES	NO	MAYBE
25.	Will the project require submission of an Air Force Form 813 ?	YES	NO	MAYBE
26.	Does this project violate the Base Comprehensive Plan?	YES	NO	MAYBE
27.	Comments/Additional Information.	YES	NO	MAYBE

Kennedy Space Center Environmental Checklist instructions and form can be found at <http://www-jj.ksc.nasa.gov/jj-d/programs/nepa/checklist/checklist.htm> or as seen below.

### **KSC ENVIRONMENTAL CHECKLIST INSTRUCTIONS**

#### **SECTION 1**

This section is to provide pertinent project information when the Checklist is to be retained in your files or submitted to the NASA Environmental Coordinator and forwarded to the JJ-D Natural Resources Program Office for review.

#### **SECTION 2a**

This section is to assist you in completing necessary actions that require basic environmental actions including reporting to regulatory agencies or NASA compliance. Please review each item carefully and follow these instructions completely. If you have any doubts about a particular item, please mark "YES" on the checklist, and complete the identified actions listed in these instructions. A "YES" mark in this section DOES NOT require the checklist to be submitted to the Environmental Program Office (EPO). You are responsible for completing the required actions and retaining this documentation.

a. Asbestos is a regulated material that can no longer be used in construction materials. If this project will disrupt (in any way) construction materials, an asbestos survey should be completed if one has not been done already. Contact EG&G Environmental Health at 867-2400 for a Support request. EG&G Environmental Health has completed a KSC-wide asbestos survey and the data is compiled on the KSC Environmental Health Asbestos Survey Data Home Page ([www-boc1/asbestos/asb\\_home.htm](http://www-boc1/asbestos/asb_home.htm)). If you know that asbestos exists and will be disturbed, regulations from 62-257 F.A.C. must be followed. If less than 260 linear feet, or less than 160 square feet of regulated asbestos containing material (RACM) is to be removed, there are no fee or reporting requirements. If the removal trips these thresholds, or is greater than 1 cubic meter (if the project cannot be measured in linear or square feet), regulations require a notification (completed by EG&G) to FDEP. The Air Group within JJ-D Environmental Program Office must be copied on all reports submitted to FDEP.

b. If the project requires the installation, modification, removal or refurbishment of polychlorinated biphenyl (PCB) containing materials, proper labeling, storing, and disposal methods must be followed. For waste disposal, a process waste questionnaire (KSC Form 26-551 (3/82)) must be completed through the EG&G Waste Management Authority (867-8640). Please adhere to requirements identified in KHB's 8800.6 and 8800.7.

c. Use, storage, generation and/or disposal of hazardous, potentially hazardous, or toxic materials. For waste disposal, a process waste questionnaire (KSC Form 26-551 (3/82)) must be completed through the EG&G Waste Management Authority (867-8640).

d. If the project requires the installation, operation, maintenance, modification, upgrade, repair, closure, removal, including disposal of aboveground or underground storage tanks and associated systems that store regulated substances, the following actions are required:

Notification requirements: Verbal notification must be made to the NASA, EPO, JJ-D-1 (phone 867-4237), 14 days prior to the start of any work. NASA EPO will provide the required information regarding the work to be accomplished to Brevard County Tank and Natural Resources office.

General registration requirements: The Florida Administrative Code (FAC) 62-761.400 requires the owner (NASA) of any in-service or out-of-service or unmaintained storage tank system which has the capacity of greater than 110 gallons to register the storage tank system with the Department on Form 62-761.900(2). The form must be submitted to FDEP through the EPO, JJ-D-1, no later than 30 days after regulated substances are put into any new storage tank system. Any changes of status associated with storage tank systems will be identified, reported and submitted to the EPO, JJ-D-1 on Form 62-761.900.

e. If the project includes generation or use (excluding microwave ovens) of ionizing or nonionizing radiation, the equipment involved must be reviewed and approved by the KSC Radiation Protection Officer at 867-4237.

#### **SECTION 2b**

This section is to assist you in providing the detailed information necessary to provide a complete assessment of regulatory and nonregulatory environmental requirements associated with your project. Please review each item carefully and provide all information requested. All packages must include a project description, detailed location maps, and complete project drawings or sketches. If you have any doubts about a particular item, please mark "YES" on the checklist, provide as much information as you can, and it will be reviewed completely.

f. Air emissions can occur either directly (i.e., stacks, vents, fuel generators, etc.) or indirectly (i.e., painting, sandblasting). Include in the project description, details of the type of direct or indirect emission associated with this project. If chemicals are used that are included in the emission in any way, list them and the amounts to be used in the project description.

g. Ozone Depleting Chemicals (ODC) are now regulated under the Clean Air Act. A list of all ODC's can be found in regulation 40 CFR Part 82. In addition, Hazardous Air Pollutants (HAP's) must also be identified as an air emission. This list of 189 pollutants can be found in regulation 62-210.200 F.A.C. Please include any of these chemicals or pollutants in the project description.

h. The listed facilities are either listed or eligible historic properties as defined by regulation and all activities or "undertakings" on these properties must be reviewed to determine the effects on the property. The regulatory definition of an "Undertaking" (36 CFR Part 800.2) is "any project, activity, or program that can result in changes in the character or use of historic properties, if any such historic properties are located in the area of potential effects. The project, activity, or program must be under the

direct or indirect jurisdiction of a Federal agency or licensed or assisted by a Federal agency. Undertakings include new and continuing projects, activities, or programs and any of their elements not previously considered under Section 106

The following actions would require a "YES" being marked on the Checklist: Demolition of the facility, abandonment in-place, construction of an adjoining structure exterior to the building or structure, or transfer of the property to another entity. In addition, if maintenance is performed which will result in a change in the existing structural integrity, operational function, or visual integrity (including color) of the facility, a "YES" must be marked on the Checklist.

All maintenance activities which restore or maintain original functions and visual integrity are considered "routine maintenance" and can be answered by marking "NO" on the Checklist.

i. If installations or modifications to Industrial Wastewater (IWW) or Domestic Wastewater (DWW) system are expected, mark "YES" on the checklist and provide the following applicable project details:

- Complete description of the new system (unit, facility, lines, etc.) for the project's treatment plant/unit, collection/transmission line and/or liftstation. If applicable, include details of single service connection to existing sewer line or pretreatment facility or single gravity feed sewer line to existing collection system.
- Complete description of the modifications proposed, such as change in size, capacity, configuration or treatment for the project's treatment plant/unit, collection/transmission line and/or liftstation.
- Complete description of the septic tank/system, wastewater holding tank, or portalet/bathroom unit (excluding portalet/bathroom units used for construction sites).
- Complete description and/or map of location of project work (internal or external of facilities for DWW, include location and distance to nearest sewer connection, etc.).

j. If the project requires installation or modification to a potable water system, mark "YES" on the checklist and include the following detailed information:

- The diameter of the line to be installed (or modified).
- Type of meter to be installed or that no meter will be installed.
- Replacement of lines using the existing design (i.e., same size and/or location).
- Location of project, interior or exterior of facilities.
- Distance of pipeline for a fire hydrant relocation.

k. If the project calls for any kind of land disturbance, soil addition/removal, excavation, digging, grading, impervious area additions or natural vegetation trimming or removal (excluding landscaped areas), please mark "YES" on the Checklist and provide the following applicable information:

- Area of impervious surface to be added.
- Detailed location maps of project area.
- Size of entire project area if over 5 acres.
- Amount of soil to be added or removed from location identified on detailed map.
- Amount of natural vegetation to be removed or trimmed.
- Identify if land disturbance is within any ditch areas.

l. If construction dewatering is expected during the project, please mark "YES" on the Checklist and provide the following applicable information so it can be determined if a Consumptive Use Permit (CUP) is required:

- Estimated daily maximum pumping volume.
- Estimated average daily pumping volume, if project is of long duration. Also identify timeframe of dewatering activities.
- Identify upland locations surrounding project area, which are proposed to , be used for discharge.

m. If new or modifications to exterior lighting is necessary, please mark "YES" and submit design details with the Checklist. In general, Low Pressure Sodium Lights (LPS) should be used if at all possible. New lights should be mounted at no more than 25 feet above the working surface. Shields must be placed on all lights including LPS. If existing lights are to be modified or refurbished, the same actions apply. The KSC Exterior Lighting Guidelines are developed to assist project management in complying with these lighting requirements. For a copy of this document, call the JJ-D Natural Resources Program Office at 867-2213, or it can be accessed on the EPO Home Page ([www-jj.ksc.nasa.gov/jj-d/epo\\_main.html](http://www-jj.ksc.nasa.gov/jj-d/epo_main.html)).

n. If the project is located on CCAS or other locations outside of KSC boundaries, mark "YES" and submit this form with appropriate maps associated with the project.

o. If any other issues are identified during the project analysis that could affect the environment, this block should be marked "YES" and the issues should be discussed in detail in the project description attached to the Checklist.

### **SECTION 3**

This section is necessary for compliance with the NEPA regulations of having a NASA entity responsible for all NEPA reviews. The Environmental Coordinator for the responsible NASA directorate must sign this section and submit the Checklist and all attached information to the EPO for review.

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This Checklist is to be used as a worksheet for all projects and activities to help identify any associated environmental issues.

#### **Section 1.**

PROJECT TITLE \_\_\_\_\_

PROJECT LEAD \_\_\_\_\_ ORG/MAIL CODE \_\_\_\_\_

TELEPHONE NO. \_\_\_\_\_ PROJECT NO. \_\_\_\_\_

ESTIMATED START DATE \_\_\_\_\_ ESTIMATED COMPLETION DATE \_\_\_\_\_

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#### **Section 2a.**

will any phase of the proposed project, process or activity (construction, installation, removal, activation or operation) involve any of the following (see instructions for guidance; IF IN DOUBT, MARK YES). If any of these items are marked YES, it is considered Categorically Excluded, but NOT necessary to submit the Checklist form and project information to the Environmental Program Office (EPO). However, the actions identified in the attached instructions must be completed and the Checklist form completed and kept on file.

YES	NO	
<input type="checkbox"/>	<input type="checkbox"/>	a. Asbestos removal, abatement, or possible disruption of construction materials that may contain asbestos.
<input type="checkbox"/>	<input type="checkbox"/>	b. PCB-containing materials or equipment.
<input type="checkbox"/>	<input type="checkbox"/>	c. Use, storage, generation, and/or disposal of hazardous, potentially hazardous, or toxic materials.
<input type="checkbox"/>	<input type="checkbox"/>	d. Construction, modification or repair of aboveground or underground storage tanks.
<input type="checkbox"/>	<input type="checkbox"/>	e. Generation of ionizing or non-ionizing radiation or use of any radiation source (excluding microwave ovens).

### Section 2b.

Will any phase of the proposed project, process or activity (construction, installation, removal, activation or operation) involve any of the following (see instructions for guidance; IF IN DOUBT, MARK YES). If any of these items are marked YES, you must complete the National Environmental Policy Act (NEPA) review by submitting the form and requested additional information to the appropriate NASA Environmental Coordinator. The signed Checklist must then be submitted to the (EPO):

YES	NO	
<input type="checkbox"/>	<input type="checkbox"/>	f. Discharge of any substance into the air either, directly (i.e., stack, vent, fuel powered generator, etc.) or indirectly (i.e., painting, sandblasting, etc.).
<input type="checkbox"/>	<input type="checkbox"/>	g. The use of Ozone Depleting Chemicals (ODC's) or Hazardous Air Pollutants (HAP's).
<input type="checkbox"/>	<input type="checkbox"/>	h. Any modification, other than routine maintenance, to any of the following: VAB, LCC, MLP's, Crawlerway, LC39A, LC39B, Press Site countdown clock/flagpole, CIF, HQ's, or O&C.
<input type="checkbox"/>	<input type="checkbox"/>	i. Generation of wastewaters or modification to system that handles or transports wastewaters.
<input type="checkbox"/>	<input type="checkbox"/>	j. Installation or modification of potable water systems.
<input type="checkbox"/>	<input type="checkbox"/>	k. Land disturbance, soil addition or removal, excavation, digging or grading, impervious area addition, or natural vegetation trimming or removal.
<input type="checkbox"/>	<input type="checkbox"/>	l. Construction dewatering.
<input type="checkbox"/>	<input type="checkbox"/>	m. Installation of new exterior lighting systems, or rehabilitation or modification of existing exterior lighting systems.
<input type="checkbox"/>	<input type="checkbox"/>	n. Is the project located on CCAS or other locations outside of KSC boundaries.
<input type="checkbox"/>	<input type="checkbox"/>	o. Other actions, which could produce environmental impacts.

If all are marked NO **from Section 2b**, this project is Categorically Excluded from further (NEPA) review. Submittal to Environmental Coordinator is not required.

### Section 3. NASA ENVIRONMENTAL COORDINATOR CONCURRENCE:

I have reviewed the information contained herein, verified that it is accurate and complete and hereby submit it to the KSC Environmental Program Office for consideration.

Name: \_\_\_\_\_ Mail Code: \_\_\_\_\_ Phone: \_\_\_\_\_  
Signature: \_\_\_\_\_ Date: \_\_\_\_\_

### PRELIMINARY ENVIRONMENTAL SURVEY FOR MARSHALL SPACE FLIGHT CENTER

#### 1. PROJECT DESCRIPTION

- a. Project Title
- b. Date of Survey
- c. Contact Person

- d. Construction Start
- e. Activation Start
- f. Description of Proposed Action or Existing Activity (Attach NASA Form 1509 or equivalent and process flow diagram)
- g. Location of Proposed Action/Existing Activity:
- h. Type of Facility (Modification or expansion of existing, new construction, existing)
- i. Estimated Land area required:
- j. Estimated number of employees:  
Construction:  
Permanent:
- k. Estimated cost of proposed activity:  
\_\_\_\_\_ Fund Source  
\_\_\_\_\_ Total cost  
\_\_\_\_\_ Construction Payroll  
\_\_\_\_\_ Annual Operation Payroll
- l. Estimated operating schedule:  
Hours per day:  
Days per week: Sat or Sun: Yes No  
Weeks per year: Back Shift Hours:
- m. Anticipated Life of Project: Years

**2. AIR (Does the activity:)**

- a. Use fuel burning equipment? Yes No  
type amount
  - (1) Boiler:  
Natural Gas or Other
  - (2) Air Heating for Space:  
Natural Gas  
Propane  
Other
  - (3) Generator:  
Gasoline  
Diesel  
Gas (Lox/H2)  
Other
- b. Store and/or consume any solid material? (coal, ash, and/or process reagents or chemicals)  
  
Specify type and amount?
- c. Store and/or use any gaseous, pressurized or liquid chemicals? (nitrogen, helium, hydrogen, oxygen, diesel fuel, gasoline, lubricating oil, waste oil, ethylene glycol, acids, caustics, chemical cleaners, solvents, paints, laboratory chemicals, photographic chemicals, oxidizers, pesticides/herbicides, hydraulic fluids, RP-1, hydrazine, carbon dioxide, acetylene, propane, butane, other)  
  
Specify type and amount?
- d. Use CFC's, halons, methyl chloroform or carbon tetrachloride? (CFC-11, CFC-12, CFC-113, Halon 1211, Methyl chloroform)  
  
Specify type and amount?
- e. Produce any particulate emissions?  
  
Specify type, amount and control?
- f. Use any particulate emission control equipment? (Cyclone, water scrubber, venturi scrubber, electrostatic precipitator, baghouse, other)  
  
Specify type and amount?

- g. Produce any gaseous emissions? (Sulfur oxides, carbon monoxide, nitrogen oxides, volatile organic compounds, fluorine, chlorine, benzene, vinyl chloride, hydrogen sulfide, other)

Specify type and amount?

- h. Use any gaseous emission control equipment? (Water scrubber, activated carbon bed, dry scrubber, other)

Specify type and amount?

- i. Use any onsite disposal systems? (Solid waste incinerator, liquid waste incinerator, waste fuel recovery burner, gaseous flare, other)

Specify type and amount?

- j. Involve the removal of asbestos containing material?

Specify type and amount?

- k. Involve sand blasting or media blasting of any structure or vessel?

Specify type and amount?

- l. Does the facility include a basement? (radon survey)

- m. Contain any Laboratory type fume hoods?

- n. Involve any spray paint booths?

### **3. WATER (Does the activity:)**

- a. Use existing sanitary sewage treatment?

Specify type and amount?

- b. Require new sewage treatment processes? (Biological (examples: septic tank, package plant), chemical/physical (examples: precipitation, filtration, ion exchange, activate carbon), other)

Specify type and amount?

- c. Require water for process operation other than for drinking water and/or sanitation?

Specify type and amount?

- d. Use non-contact or contact cooling water?

Specify type and amount?

- e. Require additional withdrawal of surface or ground water? Will withdrawal wells, borings, bedrock probes, etc. be conducted that penetrate the bedrock structure during planning, construction or operation of the facility?

Specify type and amount?

- f. Discharge process waste water? (sources other than non-contact cooling water or sanitary sewage)

Specify type and amount?

- g. Use water transportation?

Specify type and amount?

- h. Involve steam cleaning or water blasting of any structure or vessel?

Specify type and amount?

- i. Will process area storm water runoff be controlled by diversion, storage, and controlled release or other method?

Specify type and amount?



- j. Require a location adjacent or near a stormwater drainage ditch?

#### **4. LAND/WETLANDS**

- a. Will any land area proposed for use require clearing, site grading, excavation, dredging, filling, and/or construction of docks, piers, or dolphins?
- b. Is the proposed land use consistent with MSFC's Master Plan?
- c. Will any part of the facilities and/or support be located in or adjacent to flood plains, wetlands, or waterbeds? (Consult Environmental Resources Document)

#### **5. RADIOACTIVE MATERIALS AND NON IONIZING RADIATION**

- a. Will the operational activities use or introduce any new sources of ionizing or non ionizing radiation? (Uses for ionizing radiation are for analysis, calibration and nondestructive testing (radon, radio nuclides), non ionizing sources such as microwave radiation)

Specify type and amount?

#### **6. NOISE AND VIBRATION**

- a. Will the proposed action or existing activity create noise and/or vibration? (engine testing, test article testing, etc.)

Specify type, amount, and decibel level?

#### **7. TRANSPORTATION AND UTILITY CORRIDORS (will the proposed action require:)**

- a. New roads and/or utility service lines?

Specify type and amount?

- b. Any extensions and/or modifications to MSFC's existing utility systems?

- c. Any modifications to stormwater drainage ditches?

#### **8. SOLID AND HAZARDOUS WASTE (will proposed action or does the activity:)**

- a. Use or store chemicals at the facility?

Specify type, amount and controls?

- b. Generate any solid or liquid wastes?

If yes, any know hazardous waste? (spent solvents, reaction products, unused or expired reagents, acids, bases, test sample wastes, equipment cleaning wastes, spent blast material (paints), rinse water and containers from herbicide/pesticide use, paint wastes, ignitable wastes, vehicle maintenance wastes, photographic wastes, other)

Specify type and amount?

nonhazardous waste? (metals, glass, wood, paper, plastic, waste (used) oil, other)

Specify type and amount?

Any unusual amount of nonhazardous waste or used oil?

- c. Involve treatment, storage, and/or disposal operations? (treatment of a hazardous waste means any process designed to change the physical, chemical, or biological character or composition of a hazardous waste to neutralize it, recover energy or material resources from it, render it less hazardous or non hazardous, safer to handle, or amenable to recovery, storage, or reduction in volume)

Specify type and amount?

- d. Use any chemical recycling equipment?

Specify type and amount?

- e. Have maintenance area at the location?

Specify type and amount?

- f. Will any potentially lead containing surfaces be disturbed? (solder pipes, paint)

Specify type and amount?

- g. Will diking or other containment structure be required?

Specify type and amount?

## 9. TOXIC SUBSTANCES

- a. Will the proposed action involve the use of PCB-containing equipment, asbestos containing material or will existing asbestos containing materials be disturbed?

Specify type and amount?

- b. Will the subsoil and surrounding grounds receive termite treatment?

Specify type and amount?

- c. Use hexavalent chromium chemicals in comfort cooling towers?

- d. Use halogenated dibenzodioxins/dibenzofurans as contaminants in certain specified manufactured and processed chemical substances.

## 10. PROPELLANTS AND EXPLOSIVES (will proposed activity or existing activity:)

- a. Use any propellants or explosives?

Specify type and amount?

- b. Generate waste propellant or waste explosives?

Specify type and amount?

- c. Use any solid fuel grains? (hybrid motors)

Specify type and amount?

## 11. HISTORICAL AND CULTURAL FACTORS

- a. Will a historical site be affected by construction of the facility or modification to an existing facility? (Building 4665/Redstone Historic Test Site, Building 4705/Shop and Neutral Buoyancy Simulator, Building 4550/Structural Test Facility (Dynamic), Building 4572/Propulsion and Structural Test Facility (S4B))

- b. Will any other potential historical site be affected? (cemeteries, bunkers)

- c. Will any cultural area be affected? (parks, physical fitness center, day care center)

## 12. REMARKS/ADDITIONAL INFORMATION

NAME OF PERSON COMPLETING THIS FORM:

TELEPHONE NUMBER: OFFICE:

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### ENVIRONMENTAL ANALYSIS CHECKLIST (EVAL CHECKLIST)

#### PURPOSE

TO PROVIDE A DECISIONMAKING TOOL FOR MANAGERS INITIATING A PROJECT.

#### APPLICABILITY

- ALL PROPOSED PROJECTS AND PROGRAMS WITH THE POTENTIAL TO SIGNIFICANTLY IMPACT THE ENVIRONMENT.
- ALL ACTIVITIES INCLUDING CONSTRUCTION, REPAIR, REHABILITATION, MODIFICATION,

## ACQUISITION OF EQUIPMENT, DESIGN AND PLANNING RELATED TO FUTURE FACILITIES NEEDS.

**TIMING**

TO BE CARRIED OUT FROM THE EARLIEST OF PLANNING STUDIES FOR THE ACTION IN QUESTION.

**REVIEW**

THIS CHECKLIST AND SUPPORTING DOCUMENTS WILL UNDERGO REVIEW BY THE FACILITIES PRESERVATION OFFICER, THEN THE ENVIRONMENTAL COMPLIANCE OFFICE.

PROJECT NAME: \_\_\_\_\_

TECHNICAL PROJECT ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

**PART A**A "YES" ANSWER TO ANY OF THE FOLLOWING INDICATES THAT AN ENVIRONMENTAL ASSESSMENT WILL NORMALLY BE PREPARED. IF THE ANSWER IS UNCERTAIN, PLEASE ATTACH AN EXPLANATION.**YES NO UNCERTAIN**

\_\_\_\_\_ ANY ACTION AFFECTING AREAS OF HISTORICAL OR CULTURAL

CONCURRENCE OF FACILITY PRESERVATION OFFICER:

SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

\_\_\_\_\_ ANY CONSTRUCTION OR OTHER ACTIVITY IN A FLOODPLAIN OR WETLAND.

\_\_\_\_\_ ANY ACTION WHICH COULD OR WILL AFFECT ANY THREATENED OR ENDANGERED SPECIES.

\_\_\_\_\_ ANY ENVIRONMENTAL EFFECTS ON MINORITY COMMUNITIES AND LOW INCOME  
\_\_\_\_\_ COMMUNITIES, INCLUDING HUMAN HEALTH, SOCIAL, AND ECONOMIC EFFECTS  
\_\_\_\_\_**PART B**A "YES" ANSWER TO ANY ONE OF THE FOLLOWING ITEMS INDICATES THE NEED TO PREPARE SUPPORTING DOCUMENTATION. IF AN ANSWER IS UNCERTAIN, PLEASE ATTACH AN EXPLANATION.

THIS DOCUMENTATION SHOULD BE A BRIEF DESCRIPTION OF THE PROPOSED SPECIFIC ACTION. IT SHOULD BE SUBMITTED WITH THIS CHECKLIST. ANY PLANNED MEASURES TO PREVENT POLLUTION SHOULD BE DOCUMENTED AND SUBMITTED WITH THIS FORM.

DO THE PROPOSED ACTIONS, CONSTRUCTION, OR FACILITY OPERATION INCLUDE OR INVOLVE:

**YES NO UNCERTAIN**\_\_\_\_\_ DISCHARGE OF ANY SUBSTANCES INTO THE AIR, SURFACE OR GROUNDWATER,  
\_\_\_\_\_ SANITARY SEWER, OR SOILS.\_\_\_\_\_ REMOVAL OF VEGETATION OR DESTRUCTION OF WILDLIFE HABITAT OR GRADING  
\_\_\_\_\_ ACTIVITIES.\_\_\_\_\_ ACQUISITION, USE, GENERATION, STORAGE, OR DISPOSAL OF ANY TOXIC OR  
\_\_\_\_\_ HAZARDOUS SUBSTANCES.\_\_\_\_\_ GENERATION OF HAZARDOUS, TOXIC, OR RADIOLOGICAL WASTES.  
\_\_\_\_\_\_\_\_\_\_ GENERATION OF DEMOLITION DEBRIS OR EXCAVATED SOIL.  
\_\_\_\_\_\_\_\_\_\_ GENERATION OF IONIZING OR NONIONIZING RADIATION.  
\_\_\_\_\_\_\_\_\_\_ GENERATION OF HIGH NOISE LEVELS (ABOVE 80dBA).  
\_\_\_\_\_\_\_\_\_\_ USE OF PESTICIDES, INCLUDING INSECTICIDES, HERBICIDES, FUNGICIDES, AND  
\_\_\_\_\_ RODENTICIDES.\_\_\_\_\_ CONSTRUCTION OR MODIFICATION OF A SEWAGE COLLECTION, TRANSMISSION  
\_\_\_\_\_ SYSTEM, OR TREATMENT PLANT.\_\_\_\_\_ DISTURBANCE OF ASBESTOS CONTAINING MATERIALS OR FACILITIES.  
\_\_\_\_\_

\_\_\_ \_\_\_ DISTURBANCE OF PCB CONTAMINATED MATERIALS OR EQUIPMENT.  
\_\_\_

\_\_\_ \_\_\_ INSTALLATION OR REACTIVATION OF ABOVEGROUND OR UNDERGROUND  
\_\_\_ STORAGE TANKS.

\_\_\_ \_\_\_ A SIGNIFICANT IMPACT ON LOCAL SOCIAL OR ECONOMIC CONDITIONS.  
\_\_\_

\_\_\_ \_\_\_ A SIGNIFICANT IMPACT ON LOCAL UTILITIES OR TRANSPORTATION  
\_\_\_

## APPENDIX J. Other NEPA Documents

Appendix J provides examples of NEPA documents published in the Federal Register. Figure J-1 is a sample Finding Of No Significant Impact (FONSI). Figures J-2 and J-3 are two examples of a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS). Figures J-4 and J-5 are two examples of a Notice of Availability (NOA) for Draft EIS's. Figure J-6 is an example of how to address comments in a Final EIS Response to Comments section. Figures J-7 and J-8 are two examples of NOA's for Final Environmental Impact Statements. Figure J-9 is a sample contractor disclosure statement. Please disregard the extraneous characters (e.g., hyphenated words in mid-sentence; < >) sometimes introduced during downloading of electronic files from the internet.

### Figure J-1 FONSI for the Stardust Mission

[Federal Register: May 7, 1998 (Volume 63, Number 88)] [Notices] Page 25236-25237] From the Federal Register Online via GPO Access [wais.access.gpo.gov] [DOCID:fr07my98-109]

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

[Notice 98-062]

National Environmental Policy Act; Stardust mission

AGENCY: National Aeronautics and Space Administration (NASA).

ACTION: Finding of no significant impact.

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SUMMARY: Pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. 4321, et seq.), the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 CFR parts 1500-1508), and NASA policy and procedures (14 CFR part 1216 subpart 1216.3), NASA has made a FONSI with respect to the proposed Stardust mission, which would involve a flight to the comet 81-P/Wild-2 and return of cometary and interstellar dust samples to Earth. The baseline mission calls for the Stardust spacecraft to be launched aboard a Delta II 7426 from Cape Canaveral Air Station (CCAS), Florida, in February 1999, and to return the sample return canister (SRC) to Utah Test and Training Range (UTTR) approximately 65 kilometers (40 miles) southwest of Salt Lake City, Utah in January 2006.

DATE: Comments in response to this notice must be provided in writing to NASA on or before June 8, 1998.

ADDRESSES: Comments in response to this FONSI should be addressed to Mr. Mark Dahl, NASA Headquarters, Code SD, 300 E Street SW, Washington, DC 20546. The Environmental Assessment (EA) prepared for the Stardust mission which supports this FONSI may be reviewed at:

(a) NASA Headquarters, Library, Room 1J20, 300 E Street SW, Washington, DC 20546

(b) NASA, Spaceport USA, Room 2001, John F. Kennedy Space Center, Florida, 32899

(407-867-2622). Please call Lisa Fowler beforehand at 407-867-2468 so that arrangements can be made.

(c) Jet Propulsion Laboratory, Visitors Lobby, Building 249, 4800 Oak Grove Drive, Pasadena, CA 91109 (818-354-5179) The EA may also be examined at the following NASA locations by contacting the pertinent Freedom of Information Act Office:

(d) NASA, Ames Research Center, Moffet Field, CA 94035 (415-604-4191)

(e) NASA, Dryden Flight Research Center, Edwards, CA 93523 (805-258-2663)

(f) NASA, Goddard Space Flight Center, Greenbelt, MD 20771 (301-483-6255)

(g) NASA, Johnson Space Center, Houston, TX 77058 (281-483-8612)

(h) NASA, Langley Research Center, Hampton, VA 23665 (757-864-2497)

(i) NASA, Lewis Research Center, 21000 Brookpark Road, Cleveland, OH 44135 (216-433-2755)

(j) NASA, Marshall Space Flight Center, Huntsville, AL 35812 (256-544-5549)

(k) NASA, Stennis Space Center, MS 39529 (601-688-2164) A limited number of copies of the EA are available for persons wishing a copy by contacting Mr. Dahl, at the address or telephone number indicated herein.

FOR FURTHER INFORMATION CONTACT: Mark Dahl, 202-358-1544.

SUPPLEMENTARY INFORMATION: NASA has reviewed the EA prepared for the Stardust mission and has determined that it represents an accurate and adequate analysis of the scope and level of associated environmental impacts. The EA is hereby incorporated by reference in this FONSI.

NASA is proposing to launch the Stardust mission, which would deliver a single spacecraft within 150 to 1000 kilometers (km) (93 to 620 miles [mi]) of the 81-P/Wild-2 comet nucleus during a flyby in 2004 to gather 1000 dust particles from the comet's coma. The proposed action calls for using a Delta II 7426 launch vehicle with a Star 37FM upper stage to inject the Stardust spacecraft into its initial heliocentric orbit in February 1999. The proposed mission design calls for the Stardust spacecraft to swing by Earth once during its seven- year tour. This gravity assist would allow the spacecraft to gain the additional energy required to intercept the comet Wild-2. During its flight, Stardust would transmit pictures of the Earth and Moon taken during the Earth swingby, transmit pictures of the comet nucleus and coma taken during comet encounter, nondestructively capture interstellar and cometary dust particles, and return these samples to Earth for study by the international scientific community. Neither the spacecraft nor the return canister would carry radioactive material.

The primary science objective for the Stardust mission is to non- destructively collect comet dust particles greater than 15 microns (m) in size, at an encounter velocity of less than 6.5 km/ second (s) (4 mi/s), and return them to Earth for scientific study.

Secondary and tertiary scientific objectives include the collection of intact particles from the Interstellar Dust Stream impinging into our solar system; provide multiple images of Wild-2, with ten times the resolution of any comet image to date, taken within 2000 km (1240 mi) of the comet nucleus; provide in-situ participle analysis capable of resolving abundant elements in cometary fields for dust particples during the coma fly-through; provide in-situ participle analysis for interstellar dust particles and planetary dust; collect comet coma molecules and return them to Earth; provide dust flux [[ **Page 25237**]] measurement of particples having a mass less than 1 gram; and

measure the dust mass flux, number of large particulates, and comet mass upper limit. The Stardust mission is proposed to gather interstellar and cometary material and return it to Earth where the world scientific community can systematically analyze it with powerful research equipment in their laboratories.

Samples from Wild-2 would offer a glimpse of the best preserved fundamental building blocks out of which our Solar System formed. In addition, during its first two orbits about the Sun on its way to Wild-2, the Stardust spacecraft would collect approximately 100 interstellar dust particulates. This would provide the international scientific community its first opportunity to collect and analyze these interstellar dust grains.

Alternatives that were evaluated include: (1) No-Action (i.e., no Stardust mission); (2) launch vehicles options, including the Space Shuttle, Taurus, and Atlas configurations, as well as other Delta configurations; and (3) alternative landing sites. Failure to undertake the Stardust mission would disrupt the execution of NASA's Solar System Exploration Program as defined by the Agency's Solar System Exploration Committee. The scientific value of having actual bona-fide, relatively pristine comet samples is high. While environmental impacts would be avoided by cancellation of the proposed mission, the loss of the scientific knowledge and database from carrying out the mission could be substantial. Of the launch vehicles evaluated, the Delta II 7426/Star 37 FM most closely matches the Stardust mission requirements, and minimizes adverse environmental impacts within the cost constraints of this Discovery Mission.

Expected impacts to the human environment associated with the mission arise almost entirely from the normal launch of the Delta II 7426, and to a much lesser extent, the entry, descent, landing, and recovery operations of the sample return. Air emissions from the exhaust produced by the solid propellant Graphite Epoxy Motors (GEM) and liquid first stage primarily include carbon monoxide, hydrochloric acid, aluminum oxide in soluble and insoluble forms, carbon dioxide, and deluge water mixed with propellant by-products. Air impacts will be short-term and not substantial. Short-term water quality and noise impacts, as well as short-term effects on wetlands, plants, and animals, would occur in the vicinity of the launch complex. These short-term impacts are of a nature to be self-correcting, and none of these effects would be substantial. There could be no impact on threatened or endangered species or critical habitat, cultural resources, or floodplains at or in the vicinity of CCAS. Accident scenarios have also been addressed and would not result in substantial environmental impacts.

The second stage would be ignited at an altitude of 118 kilometers (74 miles), which is in the ionosphere. Although the second stage would achieve orbit, its orbital decay time would fall below the limit NASA has set for orbital debris consideration. After burning its propellant to depletion, the second stage would remain in Low Earth Orbit (LEO) until its orbit eventually decayed. The second stage is designed to burn up as it reenters Earth's atmosphere. The Stardust Project will follow the NASA guidelines regarding orbital debris and minimizing the risk for uncontrolled reentry into the Earth's atmosphere.

The level and scope of environmental impacts associated with the launch of the Delta II 7426 vehicle are well within the envelope of impacts that have been addressed in previous FONSI's concerning other launch vehicles and spacecraft.

At capture, the comet and interstellar dust particles would be traveling at very high speed relative to the spacecraft collector and would be stopped in 1 to 3 centimeters (cm) of glass (aerogel) within microseconds. The particles would undergo extreme heating during impact and capture. This is a much more severe environment than any known sterilization techniques these particles might be subjected to on Earth. Because there is little possibility of biological contamination during sample collection, and thus an insignificant chance of returning any living organism to Earth (known as



back-contamination), the Stardust project has requested and received certification from NASA's Planetary Protection Officer as a Planetary Protection Category V mission, "Unrestricted Earth Return", for the inbound mission phase.

Upper altitude emissions associated with reentry of the Sample Return Capsule (SRC) would include ablation products of the thermal protection system on the forebody. The SRC would enter the earth's atmosphere directly above UTTR's South Range with a velocity of approximately 13 km/s (8 mi/s). It would decelerate to 600 meters/s (m/ s) (1962 fee/s [ft/s]) in two minutes. The material baselined to be used for the forebody heatshield is Phenolic Impregnated Ceramic Ablator (PICA), recently developed at NASA's Ames Research Center. Due to friction, the peak heating would occur at approximately 54 seconds after reentry begins, which corresponds to an altitude of approximately 60 km (196,860 ft) above the earth. The ablation would continue for about twenty seconds. Models conservatively predict that less than 22 percent of the total PICA material would ablate during reentry, and that ablation would cease at approximately 46.5 km (152,566 ft) above the earth. The total mass of the PICA material would be about 8.5 kg (18.7 pounds [lb]); of this, a maximum of 1.86 kg (4.09 lb) would be ablated during reentry. The chemical species produced during ablation would be dissipated in the shock wave behind the SRC. Two of the chemical species produced in small amounts during ablation, hydrogen cyanide and cyanide (37 grams [g] and 149 g, respectively), are considered to be acutely toxic to humans when inhaled. The ablation process and thus the production of these species would cease more than 46 km (150,000 ft) above the earth. Therefore, these concentrations would disperse in the large volume of air in the upper atmosphere and would not constitute a danger to health or life on earth. The SRC heatshield would be rapidly cooling during the subsonic portion of the descent, and would not be emitting into the lower atmosphere.

UTTR is primarily used by the U.S. Air Force as a bombing and artillery test and training range. The entry, descent, landing, and recovery operations for the 42.6 kilogram (93.7 lb) SRC would be well within the bounds of the day-to-day operations carried on at UTTR. There would be no impact on threatened or endangered species or critical habitat, cultural resources, wetlands or floodplains at UTTR. Off-nominal recovery scenarios have also been addressed. No other impacts of potential environmental concern have been identified.

On the basis of the Stardust EA, NASA has determined that the environmental impacts associated with the mission would not individually or cumulatively have a significant impact on the quality of the human environment. NASA will take no final action prior to the expiration of the 30-day comment period.

Earle K. Huckins III,  
Deputy Associate Administrator for Space Science.  
[FR Doc. 98-12155 Filed 5-6-98; 8:45 am]  
BILLING CODE 7510-01-M

[Federal Register: May 18, 1998 (Volume 63, Number 95)] [Corrections] Page 27346] From the Federal Register Online via GPO Access [wais.access.gpo.gov] [DOCID:fr18my98-119]

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

[Notice 98-062]

National Environmental Policy Act; Stardust Mission

Correction

In notice document 98-12155 beginning on **page 25236** in the issue of Thursday, May 7, 1998, make the following corrections:

1. On **page 25236**, in the third column:
  - a. In the fourth and eighth lines from the bottom "participle" should read "particle".
  - b. In the sixth line from the bottom "participles" should read "particles".
2. On **page 25237**, in the first column:
  - a. In the first and fourth lines "participles" should read "particles".
  - b. In first full paragraph, in the ninth line "participles" should read "particles".
  - c. In the last paragraph, in the third line "entirety" should read "entirely".

BILLING CODE 1505-01-D

## Figure J-2 NOI for the X-33 Program

[Federal Register: October 7, 1996 (Volume 61, Number 195)] [Notices] Page52467-52469] From the Federal RegisterOnline via GPO Access [wais.access.gpo.gov] [DOCID:fr07oc96-81]

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### NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

[Notice 96-118]

National Environmental Policy Act; X-33 Program: Vehicle Design and Flight Demonstration

AGENCY: National Aeronautics and Space Administration (NASA).

ACTION: Notice of intent to prepare an environmental impact statement (EIS) and conduct scoping for the development and testing of the X-33 vehicle.

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SUMMARY: Pursuant to the National Environmental Policy Act of 1969 (NEPA), as amended (42 U.S.C. 4231 et seq.), the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Part 1500-1508), and NASA policy and procedures (14 CFR Part 1216 Subpart 1216.3), NASA intends to prepare an EIS for Phase II of the X-33 Program (hereinafter referred to as the "Program"), which would involve development and demonstration of the X-33 test vehicle. The EIS will address environmental issues associated with the fabrication, assembly, testing, and preparation of the flight operations and landing sites associated with the X-33 technology demonstrator spaceplane. The purpose of the proposed test program is to demonstrate the feasibility of technology which could result in commercially viable Reusable Launch Vehicles (RLV) with certain aircraft-like operational characteristics. The proposed Phase II of the Program would involve final design, assembly and testing the X-33 vehicle by the year 2000.

Flight operations and landing site alternatives are under consideration to satisfy flight testing requirements. The flight test demonstration program would require short-range, mid-range, and long-range landing sites remote from the flight operations (i.e., vehicle takeoff) site at distances of

approximately 160, 640, and 1,360 kilometers (km) (100, 400, and 850 miles (mi)) respectively. The reasonable alternative sites for the proposed flight operations are located within Edwards Air Force Base (EAFB) near Lancaster, California. Alternative landing sites for the flight test activities are being considered in the States of California, Utah, Montana, and Washington.

NASA is the lead agency in the preparation of the EIS. It is anticipated that components of the U.S. Department of Defense, the Bureau of Land Management, and the Federal Aviation Administration will act as cooperating agencies.

DATES: Interested parties are invited to submit comments on or before November 29, 1996, to assure full consideration during the scoping process.

ADDRESSES: Comments should be addressed to Dr. Rebecca C. McCaleb, Director, Environmental Engineering and Management Office, Code AE01,

[[**Page 52468**]]

Marshall Space Flight Centers, Alabama 35812. In addition, comments may be sent to Dr. McCaleb electronically at (X33EIS@msfc.nasa.gov) or by facsimile at 205-544-8259. Information repositories will be maintained at the following locations:

- (a) NASA Headquarters, Library, Room 1J20, 300 E Street SW, Washington, DC 20546.
- (b) NASA, Marshall Space Flight Center, Library, Building 4200, Huntsville, AL 35812.
- (c) Kern County Library, Boron Branch, 27070 Highway 5, Boron, CA 93516.
- (d) Kern County Library, Ridgecrest Branch, 131 East Las Flores Street, Ridgecrest, CA 93555.
- (e) Los Angeles County Library, Lancaster Branch, 1150 West Avenue J, Lancaster, CA 93524.
- (f) Palmdale City Library, 700 East Palmdale Boulevard, Palmdale, CA 93550.
- (g) San Bernadino County Library, Barstow Branch, 304 East Buena Vista, Barstow, CA 92311.
- (h) Great Falls Public Library, 301 2nd Avenue North, Great Falls, MT 59401.
- (i) Moses Lake Library, 418 East 5th Street, Moses Lake, WA 98837.
- (j) Dugway Proving Grounds Library, 5124 Kisstler Avenue, Dugway, UT 84022.
- (k) Tooele Library, 47 East Vine Street, Tooele, UT 84074.
- (l) Salt Lake City Library, 209 East 500 South, Business/Science Department, Salt Lake City, UT 84111.

FOR FURTHER INFORMATION CONTACT; Dr. Dominic A. Amatore, Deputy Director, Public Affairs Office, Code CA01, Marshall Space Flight Center, AL 35812, 205-544-6533. His office will ensure that the appropriate source of information is provided.

SUPPLEMENTARY INFORMATION: The key objectives of the X-33 Design and Flight Demonstration Program include:

--Reduce business and technical risks to privately financed development and operation of a next generation space transportation system through ground and flight tests of a spaceplane technology demonstrator.

--Ensure that the X-33 design and major components are usable and scaleable to a full scale,

## single-stage-to-orbit (SSTO) RLV

--Demonstrate "aircraft like" operations such as reusability and affordability.

--Demonstrate autonomous capability (i.e., vehicle does not have a pilot or onboard flight crew but is controlled by onboard flight management system; vehicle is tracked by telemetry and on systems; and human intervention capability to modify trajectory is maintained at the flight operations site) from takeoff to landing.

--Verify operability and performance in "real world" environments.

The X-33 test vehicle is planned as an approximately one-half scale reusable spaceplane. The vehicle would takeoff in a vertical position and use conventional runways to land horizontally. The X-33 vehicle would consist of a lifting body airframe with two cryogenic liquid propellant tanks (liquid hydrogen (LH2) and liquid oxygen (LOX)) placed within the aeroshell, and would use two linear aerospike main engines. Water would be the primary product of the LOX/LH2 combustion. The entire spaceplane (with all fuel tanks and engines) would takeoff and land as a single unit. The flight profile includes takeoff with engine burn until flight speed and altitude objectives are reached; at that point, the engines would cut off.

The flight test plan to meet the Program objectives would involve flights of approximately 160, 640, and 1,360 km (100, 400, and 850 mi). During the landing sequence, the spaceplane would glide to the landing site in an unpowered manner. Flight tests would involve speeds of up to Mach 15 and altitudes up to approximately 75,800 meters (250,000 feet). None of the X-33 tests flights would achieve Earth orbit. Ground operations and servicing (e.g., checkout, refueling, etc.) would be conducted with "aircraft like" procedures and systems.

The test flight program is planned to be conducted in three stages, with all takeoffs occurring from the same flight operations site. The three stages would involve the incremental expansion of distance and speed referred to as the "flight envelope expansion" which allows the development program to minimize risk while achieving test objectives. The three stage approach would necessitate short-range, mid-range, and long-range landing sites to achieve maximum speeds of Mach 4, 12, and 15, respectively. After each test flight, the X-33 would be ferried back to the takeoff site by a Boeing 747 aircraft in a manner similar to that used for the transport of Space Shuttle orbiters. The test program is currently baselined for a combined total of 15 flights.

Alternatives to be considered for this proposal include, but are not limited to:

--Alternative flight operations (takeoff) sites

--Short-range landing sites

--Mid-range landing sites

--Long-range landing sites

--The "no action" alternative which defines the baseline conditions that would prevail in the absence of the X-33 test program.

Three locations within EAFB are the reasonable alternatives being considered for the flight operations site. Reasonable short-range landing sites being considered are Silurian Lake, a dry lake bed, northeast of Barstow, California; and China Lake Naval Weapons Center, near Ridgecrest, California. The baseline alternative for the mid-range landing site is Michael Army Air Field at Dugway proving Grounds, Utah. Reasonable long-range landing sites being considered are Port of Moses Lake, Washington; and Malmstrom Air Force Base near Great Falls, Montana. Analyses conducted to date indicate that other potential flight operations and landing sites are inadequate to

meet the requirements of the Program. The "no action" alternative (i.e., absence of the X-33 Program) would mean that the RLV Program, as planned, could not proceed, resulting in continued reliance on existing U.S. Government owned or controlled space launch vehicles, such as the Space Shuttle and expendable launch vehicles; and/or space launch vehicles owned and operated by foreign governments.

The EIS will consider the potential environmental impacts associated with the test program and related construction and modification of facilities. An initial assessment of potential environmental impacts indicates that the EIS should focus on sonic booms; potential effects on cultural resources, and threatened and endangered species; on-range and off-range flight test paths; and environmental impacts at the reasonable flight operations and landing site alternatives.

Public scoping meetings will be held at the following dates and locations:

(a) Monday, October 21, 1996; 7:00 p.m. Social Rehabilitative Services Auditorium, Sanders Avenue, Helena, MT 59601.

(b) Tuesday, October 22, 1996; 6:00 p.m. Great Falls High School, 1900 Second Avenue, South, Great Falls, MT 59405.

(c) Thursday, October 24, 1996; 7:00 p.m. Washington State National Guard Armory, 6500 32nd Avenue, N.E., Moses Lake, WA 98837.

(d) Monday, October 28, 1996; 7:00 p.m. Dugway Post Theater, US Army Dugway proving Grounds, Dugway, UT 84022.

(e) Tuesday, October 29, 1996; 7:00 p.m. Tooele Senior Center, 59 East Vine Street, Tooele, UT 84074.

[[Page 52469]]

(f) Wednesday, October 30, 1996; 7:00 p.m. Quality Inn Airport, 5575 West Amelia Earhart Drive, Salt Lake City, UT 84116.

(g) Tuesday, November 12, 1996; 7:00 p.m. Best Western Antelope Valley Inn, 44055 North Sierra Highway, Lancaster, CA 93534.

(h) Wednesday, November 13, 1996; 7:00 p.m. Carriage Inn, 901 North China Lake Boulevard, Ridgecrest, CA 93555.

(i) Thursday, November 14, 1996; 7:00 p.m. West Boron Elementary School, 12300 Del Oro, Boron, CA 93516.

(j) Saturday, November 16, 1996; 10:00 a.m. Holiday Inn, 1511 East Main Street, Barstow, CA 92311.

Written public input and comments on environmental impacts associated with the proposed Program, including, but not limited to, flight operations and landing site options, as well as related environmental concerns, are hereby solicited.

Dated: October 1, 1996.

Benita A. Cooper,

Associate Administrator for Management Systems and Facilities.

[FR Doc. 96-25643 Filed 10-4-96; 8:45 am]

BILLING CODE 7510-10-M



## Figure J-3 NOI for the Europa Mission on

[Federal Register: October 7, 1998 (Volume 63, Number 194)]

[Notices]

[Page 53938]

From the Federal Register Online via GPO Access [wais.access.gpo.gov]

[DOCID:fr07oc98-96]

[[Page 53938]]

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### NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

[Notice 98-136]

National Environmental Policy Act; Europa Orbiter Mission

AGENCY: National Aeronautics and Space Administration (NASA).

ACTION: Notice of intent to prepare an environmental impact statement and conduct scoping for the Europa Orbiter mission.

SUMMARY: Pursuant to the National Environmental Policy Act of 1969, as amended (NEPA) (42 U.S.C. 4321, et seq.), the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500-1508), and NASA policy and procedures (14 CFR Part 1216 Subpart 1216.3), NASA intends to prepare an Environmental Impact Statement (EIS) for NASA's Europa Orbiter mission. The EIS will address the environmental impacts associated with launching and operating the mission.

The Europa Orbiter mission is currently proposed to launch in November 2003 or December 2004 from Kennedy Space Center, Florida, on an orbital mission around Jupiter's icy moon Europa. The launch date would be affected by the launch date for NASA's proposed Pluto-Kuiper Express mission. Concurrent with the publication of this notice of intent (NOI), NASA is publishing an NOI to prepare an EIS for the Pluto-Kuiper Express mission. Environmental impacts to be considered in the EIS are those impacts associated with a normal launch from Kennedy Space Center, and the potential radiological and non-radiological risks of the mission. The baseline plan for the Europa Orbiter mission would include the use of a Radioisotope Power System (RPS) and approximately 50 Radioisotope Heater Units (RHU's).

DATES: Interested parties are invited to submit written comments to NASA on or before November 23, 1998, to assure full consideration during the scoping process.

ADDRESSES: Written comments should be addressed to Mr. David Lavery, Advanced Technology and Mission Studies Division, Code SM, NASA Headquarters, Washington, DC 20546-0001. While hard copy comments are preferred, comments by electronic mail may be sent to: [osseuropa@hq.nasa.gov](mailto:osseuropa@hq.nasa.gov).

FOR FURTHER INFORMATION CONTACT: Mr. David Lavery, 202-358-1109; electronic mail: [osseuropa@hq.nasa.gov](mailto:osseuropa@hq.nasa.gov).

SUPPLEMENTARY INFORMATION: NASA's Space Science Program seeks to investigate the mysteries of the Universe, explore the Solar System, find planets around other stars, and search for life beyond Earth. The Europa Orbiter mission would cast light on our search for the chemical and biological origins of life, and broaden our knowledge of our Solar System. Hydrothermal zones on Earth have been shown to harbor life and may represent the type of environment in which life might have arisen on Earth. If there is (or once was) an ocean and related volcanism on Europa, as suggested by results from NASA's Galileo Jupiter orbiter mission, then the Europa Orbiter mission may lead to the discovery of life beyond Earth.

The science goals of the Europa Orbiter and Pluto-Kuiper Express missions are independent. The implementation of either mission has no effect on the need for and implementation of the other mission other than logistical timing factors.

The Europa Orbiter spacecraft is currently proposed to launch in November of 2003 or December of 2004 from Kennedy Space Center, Florida, on an orbital mission around Jupiter's icy moon Europa. The currently proposed spacecraft and mission design would probably require the use of the Space Shuttle with an Inertial Upper Stage and one or more additional solid rocket stage(s) to launch the Europa Orbiter. The proposed trajectory would involve a direct flight and not require any planetary gravity assist maneuvers.

If the mission utilizes an RPS, it is anticipated that, due to relatively low spacecraft electrical power requirements and a potential for improved power system efficiency, the spacecraft w

**... need continuation**



# APPENDIX K. Questions and Answers About NASA NEPA Regulations

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## K.1 Introduction

- a. This appendix provides answers to the most commonly asked questions about NASA's National Environmental Policy Act (NEPA) compliance regulations. The U.S. Department of Energy's Green Book, National Environmental Policy Act Compliance Guide, Volume II Reference Book (DOE 1998) was a primary source in identifying questions.
- b. The Forty Most Often Asked Questions Concerning CEQ's National Environmental Policy Act Regulations (46 FR 18026) can be found in Appendix G. It is highly recommended reading.

## K.2 Question and Answers

### K.2.1 Question 1: What is considered a NEPA Document?

- A. NASA defines a NEPA document as any document required by Council on Environmental Quality regulations or NASA NEPA regulations that includes a Notice of Intent (NOI), Notice of Availability (NOA), Draft and Final Environmental Impact Statements (EIS's), Record of Decision (ROD), Draft and completed Environmental Assessments (EA's), finding of no significant impact (FONSI), Environmental Resources Document (ERD), or any other document prepared pursuant to a requirement of NEPA or the CEQ regulations.

### K.2.2 Question 2: Does the EIS definition include a supplemental EIS?

- A. Yes. The term EIS includes Draft, Final, tiered, and supplemental EIS's. Note that the CEQ regulations (40 CFR §1502.9(c)(4)) specify that a supplemental EIS shall be prepared, circulated, and filed ". . . in the same fashion (exclusive of scoping) as a draft and final statement . . ."

### K.2.3 Question 3: When should you begin a NEPA review for a research program?

- A. The NEPA review process should begin as soon as environmental effects can be meaningfully evaluated and before reaching the level of investment or commitment likely to determine subsequent development or restrict later alternatives (Section 40 CFR §1502.4(c)(3) of the CEQ regulations and NASA's NEPA implementing regulations).

### K.2.4 Question 4: What are the procedures for coordination with Indian tribes?

- A. If tribal lands would be affected by a NASA action, Indian tribes should be given the same opportunities afforded to States (e.g., direct mailing notices of available NEPA documents, early consultation during NEPA document preparation). Refer to the Bureau of Indian Affairs for more information on Indian tribes. A listing of the Federally recognized Indian tribes is available from the U.S. Department of Interior, Bureau of Indian Affairs, Office of Public Affairs, Washington, DC 20240.

K.2.5 Question 5: Must every EIS be reviewed at least every 5 years to determine if a supplement is required?

A. Only ERD's, as a category, must be for reviewed for adequacy every 5 years.

In addition, based on CEQ's Forty Most Often Asked Questions Concerning CEQ's National Environmental Policy Act Regulations as a rule of thumb, if the proposed action has not been implemented or if the EIS concerns an ongoing program, an EIS that is more than 5 years old should be reexamined to determine if a supplement is required. See Question #32 in Forty Questions... NASA procedures provide for monitoring of the action after a categorical exclusion determination, a FONSI, and a ROD. One of the principal reasons for monitoring implementation is to detect changes that could initiate additional NEPA review, such as mitigation techniques that are not working and resulting in unanticipated impacts or significant new information that has a bearing on important environmental issues (see section 7.5-Supplemental EIS's).

K.2.6 Question 6: What obligation does NASA have with regard to public notification when there is a lengthy delay between when a decision is made to prepare an EIS and its actual preparation?

A. NASA is required to publish a NOI in the Federal Register in accordance with 40 CFR §1501.7 that contains the elements specified in 40 CFR §1508.22 as soon as practicable after a decision is made to prepare an EIS. NASA may defer publication of the NOI until a reasonable time before preparing the EIS, provided that NASA allows a reasonable opportunity for interested parties to participate in the EIS process. NASA requires that the EIS scoping period be at least 45 days in duration.

K.2.7 Question 7: When there will be a lengthy delay between publication of the NOI and release of the Draft EIS, what are NASA's obligations?

A. If circumstances determine that release of the Draft EIS will be subject to a lengthy delay, the Sponsoring Entity should publish an information update in the Federal Register explaining why the delay is occurring and what the new schedule is expected to be. Copies should be mailed directly to interested parties, including respondents to the NOI during scoping.

K.2.8 Question 8: Is a public scoping process required for a NASA supplemental EIS?

A. A public scoping process is not required for a supplemental EIS. When the scope of the proposed action has changed or the importance, size, or complexity, of the proposal warrants, NASA may elect to have a scoping process.

K.2.9 Question 9: Is a ROD required for a supplemental EIS?

A. Yes. With the exception of scoping, which is optional (see K.2.2 and K.2.8 above), a supplement to a Draft or Final EIS is prepared, circulated, and filed in the same manner as any other Draft and Final EIS. It also includes the preparation of a ROD.

K.2.10 Question 10: When can NASA take action on a proposal covered by an EIS or EA?

A. No final decision may be made on a proposal covered by an EIS or EA during a mandatory waiting period following completion of the Final EIS, except as provided at 40 CFR §1506.1

and §1506.10(b). Specifically, CEQ regulations state that a decision cannot be made until the later of (a) 90 days after the date of publication of the NOA for the Draft EIS or (b) 30 days after the date of publication of the EPA NOA for the Final EIS. No final action can be taken until the ROD has been issued.

Before completing the NEPA process. NASA cannot take any action that will (a) have an adverse environmental impact or (b) limit the choice of reasonable alternatives.

K.2.11 Question 11: Which documents and decisions are required to be published in the Federal Register?

A. NOI's and NOA's for EIS's, and FONSI's for exceptional action EA's are required to be published in the Federal Register.

K.2.12 Question 12: Is it necessary to execute a categorical exclusion for routine maintenance and other continuing operations actions for projects and facilities?

A. No. Continuing operation of a NASA facility does not need documentation (see section 4.5.1d).

K.2.13 Question 13: What kind of NEPA review is required to shut down a facility? Can a facility be shut down and subsequently restarted based on a categorical exclusion?

A. Normally, shutdown and startup of a facility (e.g., workload reductions) is considered part of a continuing operation that does not trigger NEPA review, assuming there is an applicable ERD or EA/EIS covering the facility. However, the activities that take place during the shutdown (e.g., facility modification, safety improvements or repair, or reduced maintenance) may require NEPA review if appropriate documentation does not already exist. This advice does not apply to transfers of ownership or use to another party or where the facility has special status or other environmental prominence (e.g., National Historic Landmark).

K.2.14 Question 14: Must the No-Action alternative be assessed in NASA EA's?

A. Yes. CEQ regulations explicitly require assessment of the No-Action alternative only for EIS's. NASA NEPA implementing regulations require the No-Action alternative be considered for both EA's and EIS's.

K.2.15 Question 15: What is the appropriate time frame for which environmental impacts should be analyzed?

A. In general, impacts should be analyzed for as long as they are reasonably expected to occur.

This question reflects confusion regarding reasonably foreseeable actions and their reasonably foreseeable resulting impacts. To illustrate, consider a major construction of facilities project for a new launch vehicle processing center, where construction will take 2 years and the operational lifetime of the facility is 15 years. Impacts should be evaluated for construction and operation of the facility, i.e., for at least 17 years. If the facility was decommissioned and continued to emit effluents to the environment, the time frame could be extended even further.

K.2.16 Question 16: How should NASA address public comments received on a Final EIS?

- A. Comments NASA receives on a Final EIS before the ROD has been issued should be reviewed to first determine whether the comments present "significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts". If it is clear that the comments do present such new information, a supplemental EIS is normally required (40 CFR §1502.9(c)).

If it is clear that the comments do not require a supplemental EIS, then NASA may issue a ROD. NASA's approach is to address such comments in the ROD itself or as a referenced independent document. NASA may refer the commentor to the appropriate section in the Final EIS in lieu of a detailed answer.

Comments on a Final EIS that NASA receives after a ROD has been issued should be considered in light of 40 CFR §1502.9(c).

K.2.17 Question 17: May NASA adopt another agency's EA and FONSI if NASA was not a cooperating agency?

- A. Any Federal agency may adopt another Federal or State agency's EA for which a FONSI was issued and is encouraged to do so to save time or money. The FONSI of another agency cannot be adopted. To decide if adopting an EA is appropriate, NASA (as adopting agency) must conclude that the EA adequately describes its proposed action and in all other respects meets its requirements for EA's. Normal practices for review, publishing, and notifying the public would occur. NASA would issue its FONSI, if appropriate. The administrative record should be maintained as with any other EA.

K.2.18 Question 18: May NASA use unpublished NEPA documents as reference material in preparing another NEPA document?

- A. NASA recognizes that extensive NEPA documents and analyses have been prepared for programs that were canceled before publication of the NEPA documents. If the work in question was compiled and analyzed by recognized experts and the document or analyses were or will be made available to the public, either in the designated information repositories or upon request through the Freedom of Information Act (FOIA), it is acceptable to use the document and/or the analysis as reference material, provided that it has been evaluated by NASA and found to be reasonable and relevant to the proposed NASA action. The information/document can then be cited in the reference section.

# APPENDIX L. Abbreviations and Acronyms

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AAIC	Assistant Administrator for Institutional and Corporate Management
BLM	Bureau of Land Management
CAA	Clean Air Act
CatEx	Categorical Exclusion
CBRS	Coastal Barrier Resources System
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
COE	U.S. Army Corps of Engineers
DEIS	Draft Environmental Impact Statement
DNR	Department of Natural Resources
DOE	U.S. Department of Energy
DOS	U.S. Department of State
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMD	Environmental Management Division
EMO	Environmental Management Office
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Preparedness and Community Right-to-Know Act
ERD	Environmental Resources Document
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FFRDC	Federally Funded Research and Development Center
FOIA	Freedom of Information Act
FONSI	Finding of No Significant Impact
FR	Federal Register
HQ	(NASA) Headquarters
HQ/EMD	(NASA) Headquarters/Environmental Management Division
HSF	Human Space Flight
IAEA	International Atomic Energy Agency

JPL	Jet Propulsion Laboratory
MS	Mission Support
NAAQS	National Ambient Air Quality Standards
NASA	National Aeronautics and Space Administration
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NHB	NASA Handbook
NHPA	National Historic Preservation Act
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NPD	NASA Policy Directives
NPDES	National Pollutant Discharge Elimination System
NPR	NASA Procedural Requirements
NRCS	National Resource Conservation Service
OSS	Office of Space Science
PAO	Public Affairs Office
Pub.L.	Public Law
RCRA	Resource Conservation and Recovery Act
REC	Record of Environmental Consideration
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SAT	Space, Aeronautics, and Technology
SDWA	Safe Drinking Water Act
SHPO	State Historic Preservation Office
UIC	Underground Injection Control
U.S.C.	United States Code
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
www	World Wide Web